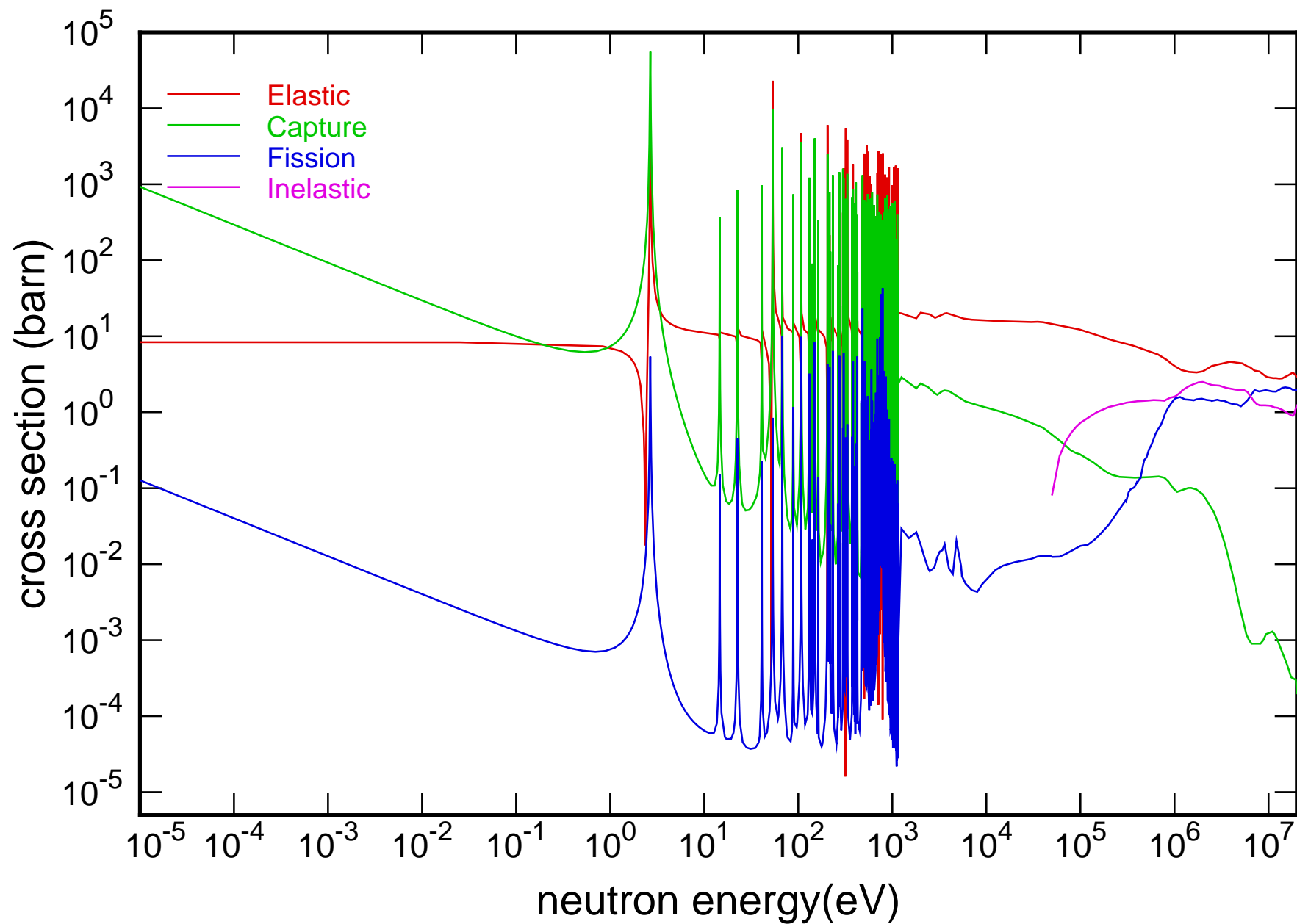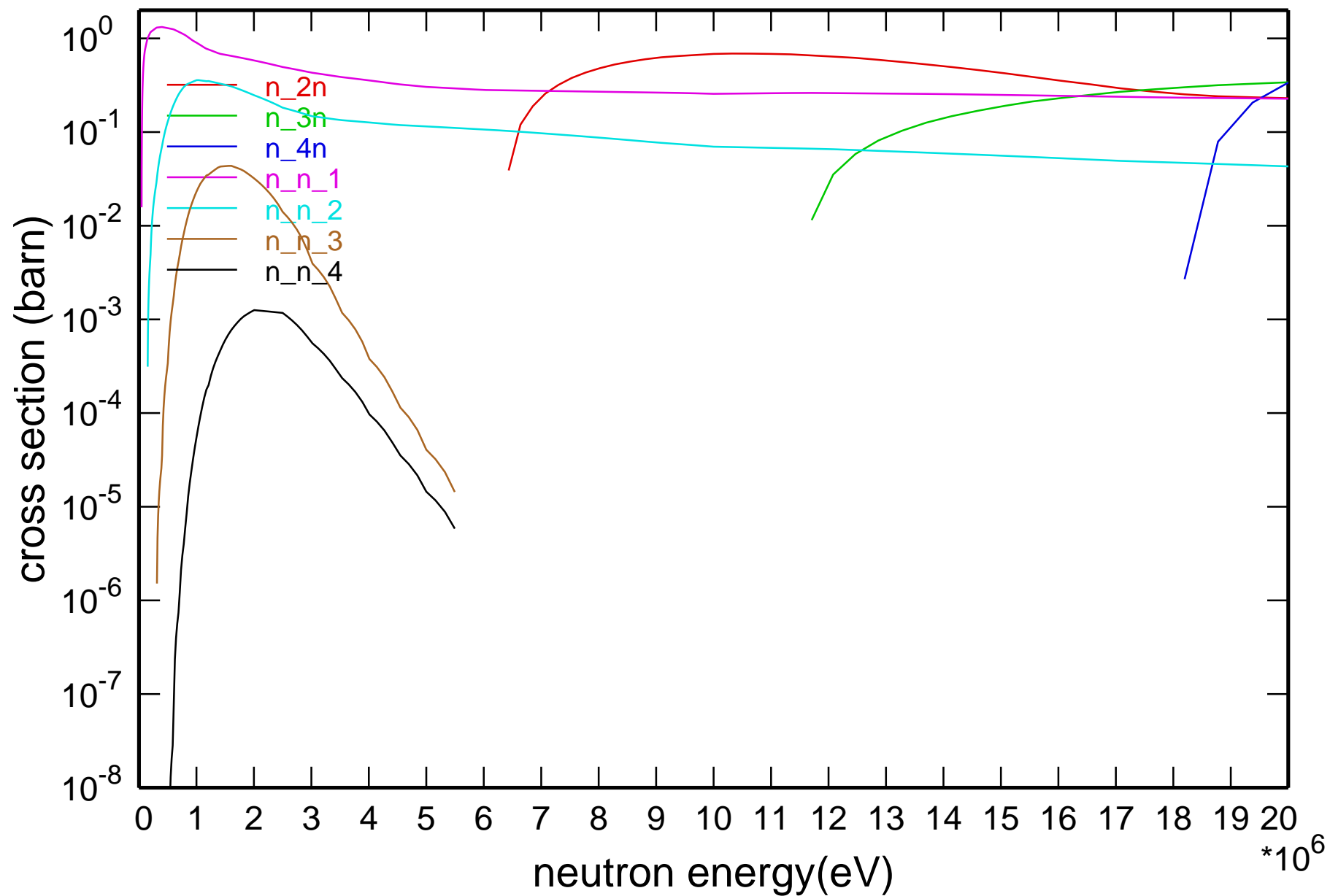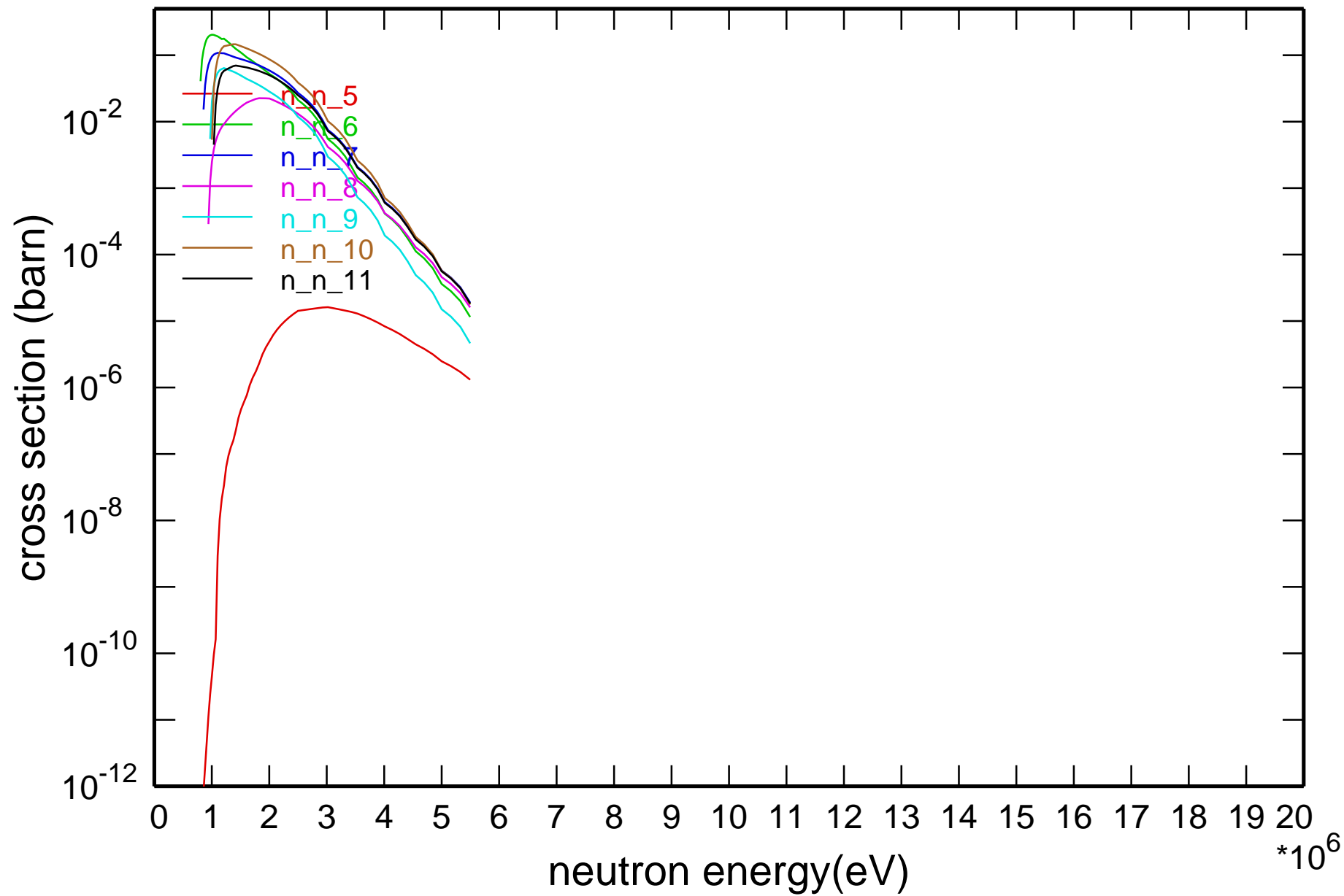Main Cross Sections

Cross Section

Cross Section

cross section (barn)

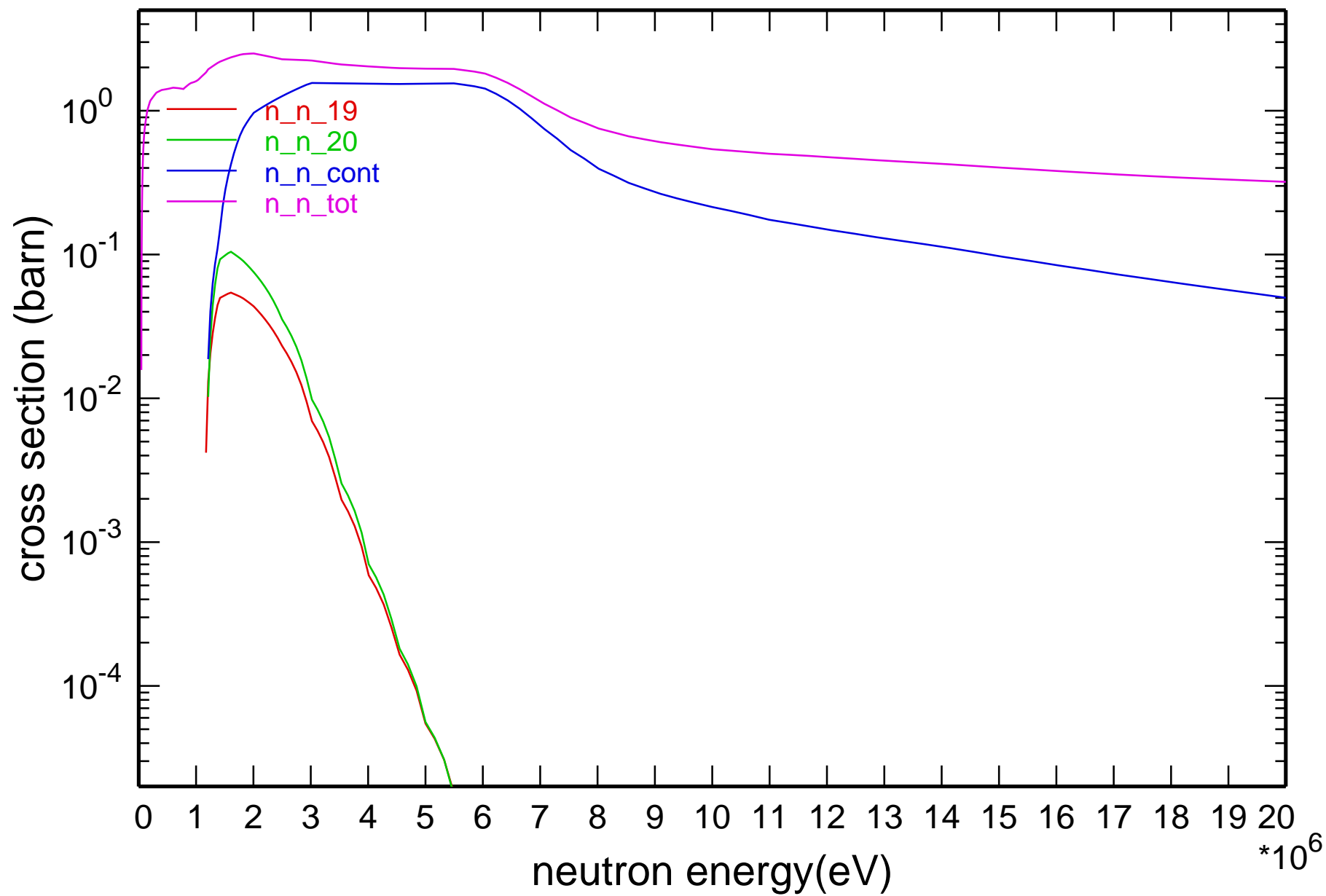n_n_5
n_n_6
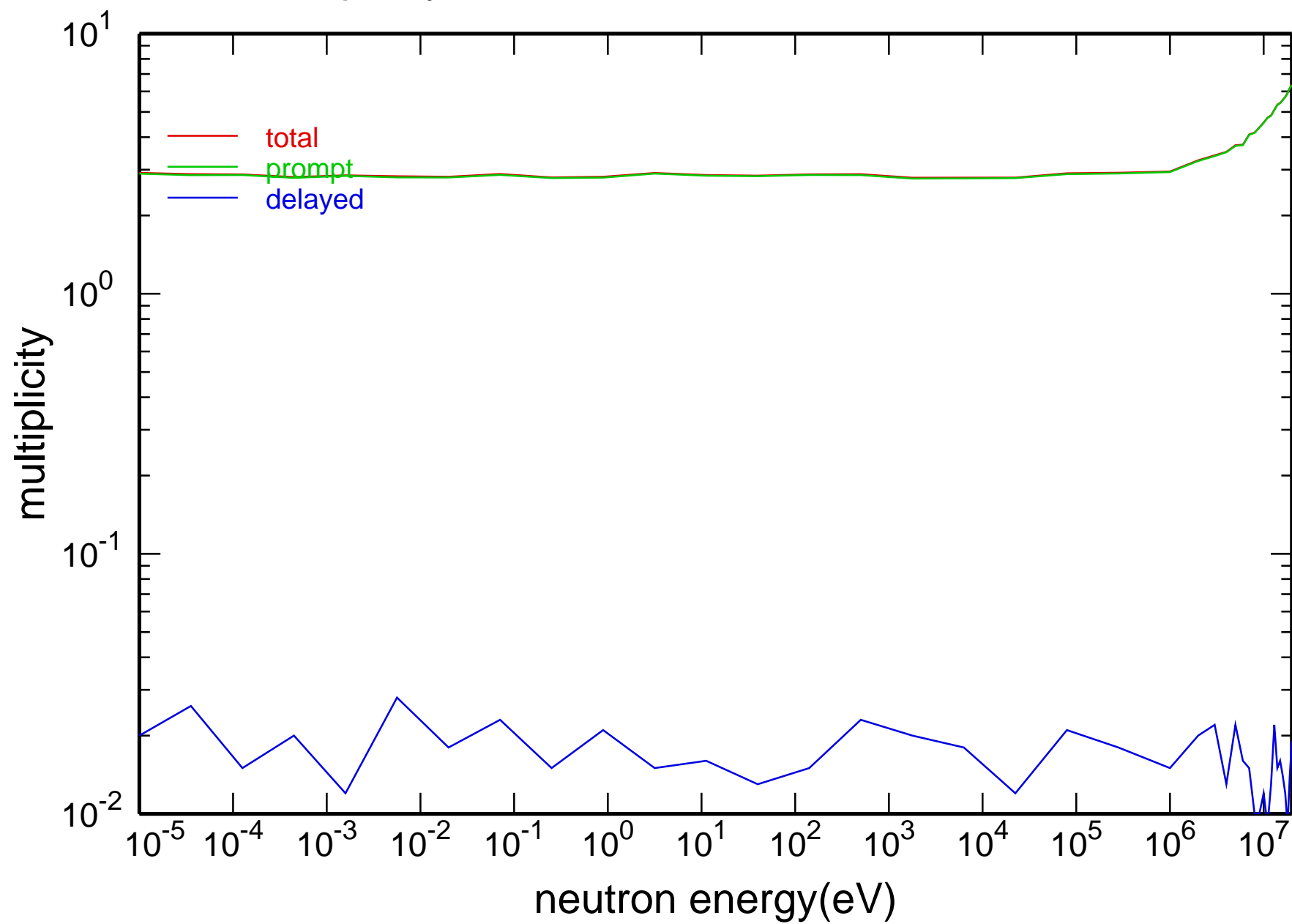n_n_7
n_n_8
n_n_9
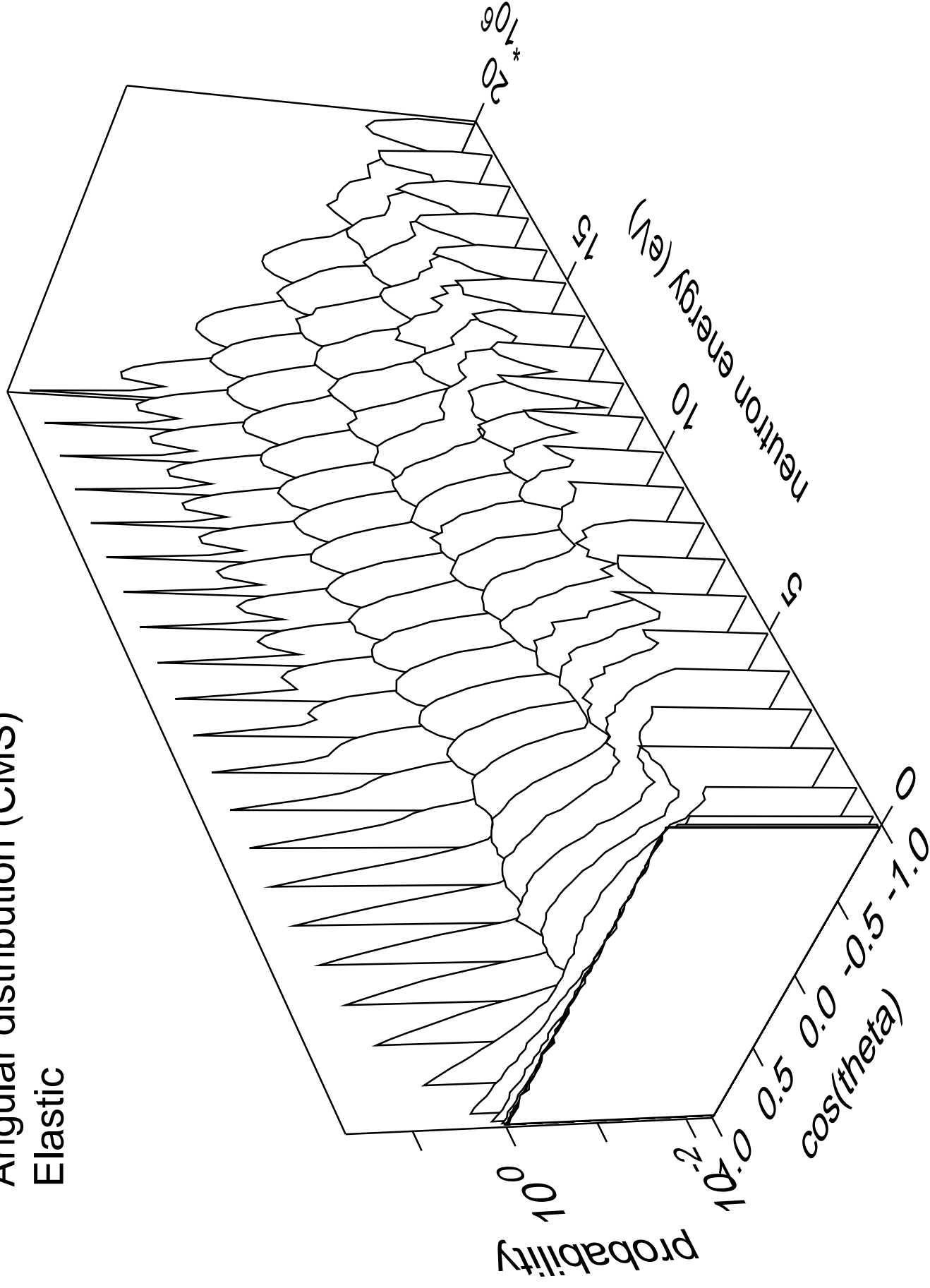n_n_10
n_n_11

neutron energy(eV)

*10^6
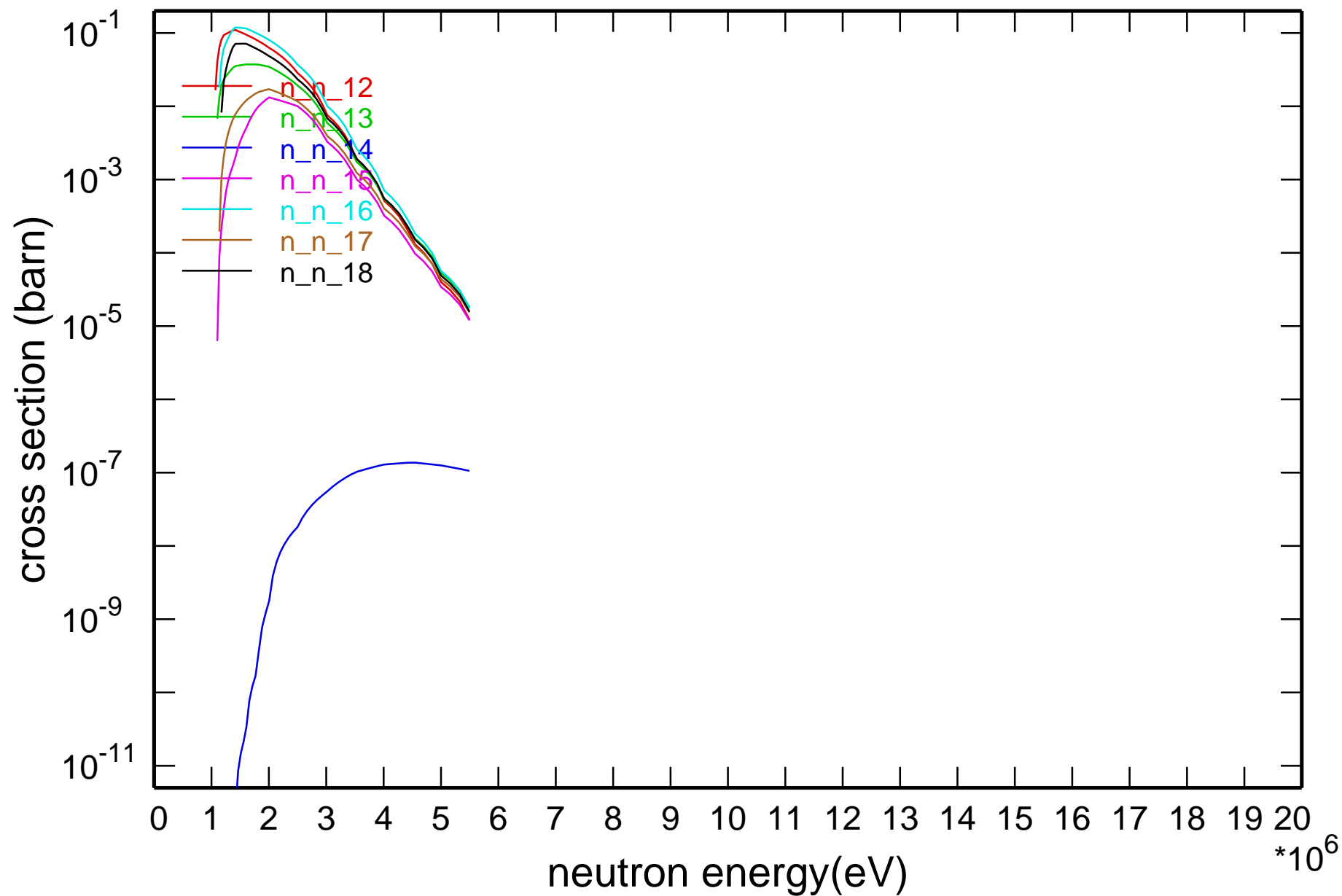
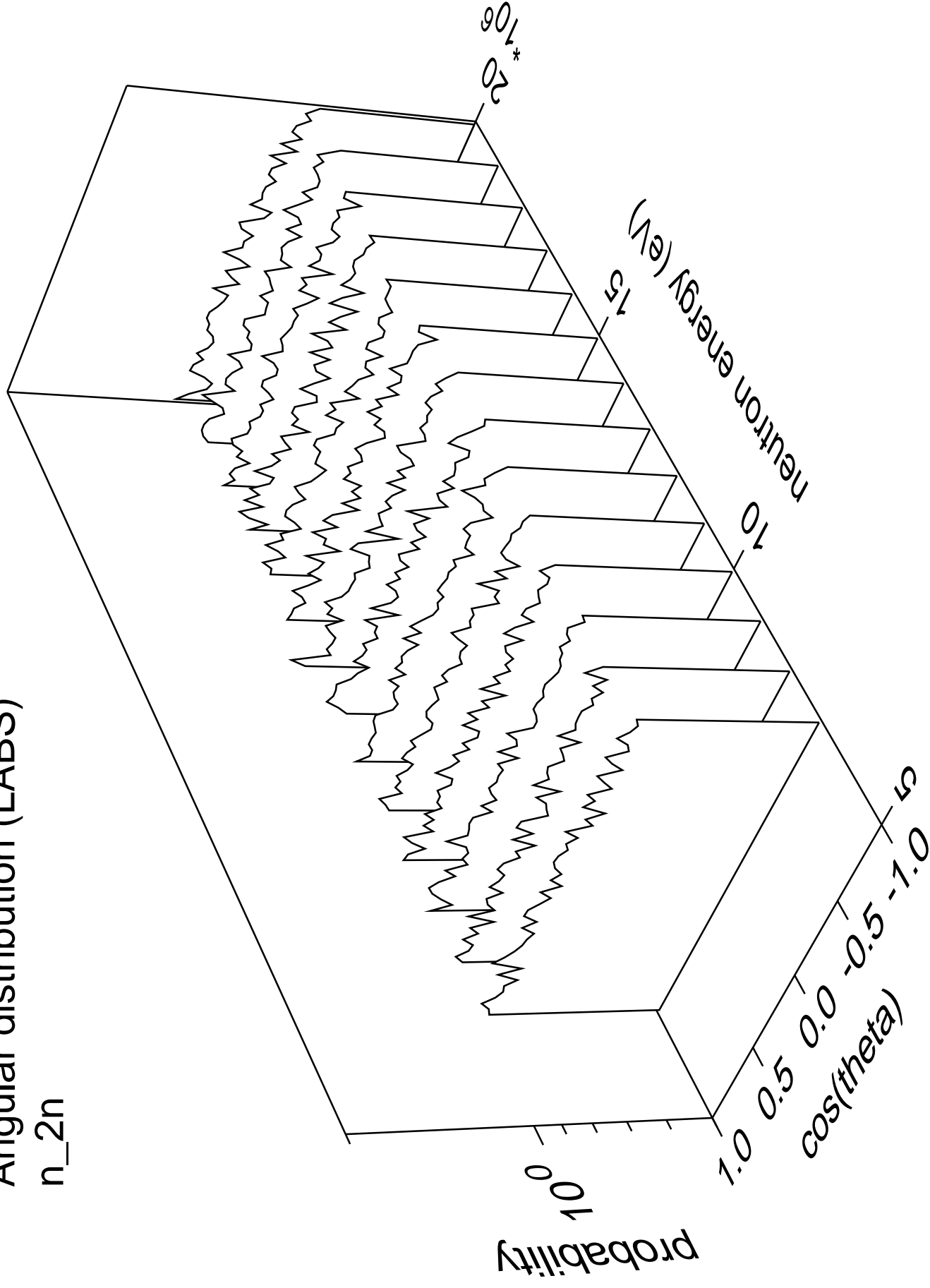Cross Section

Cross Section

neutron multiplicity for fission

Angular distribution (CMS)
Elastic

Angular distribution (LABS)
n_2n

Angular distribution (LABS)
n_3n
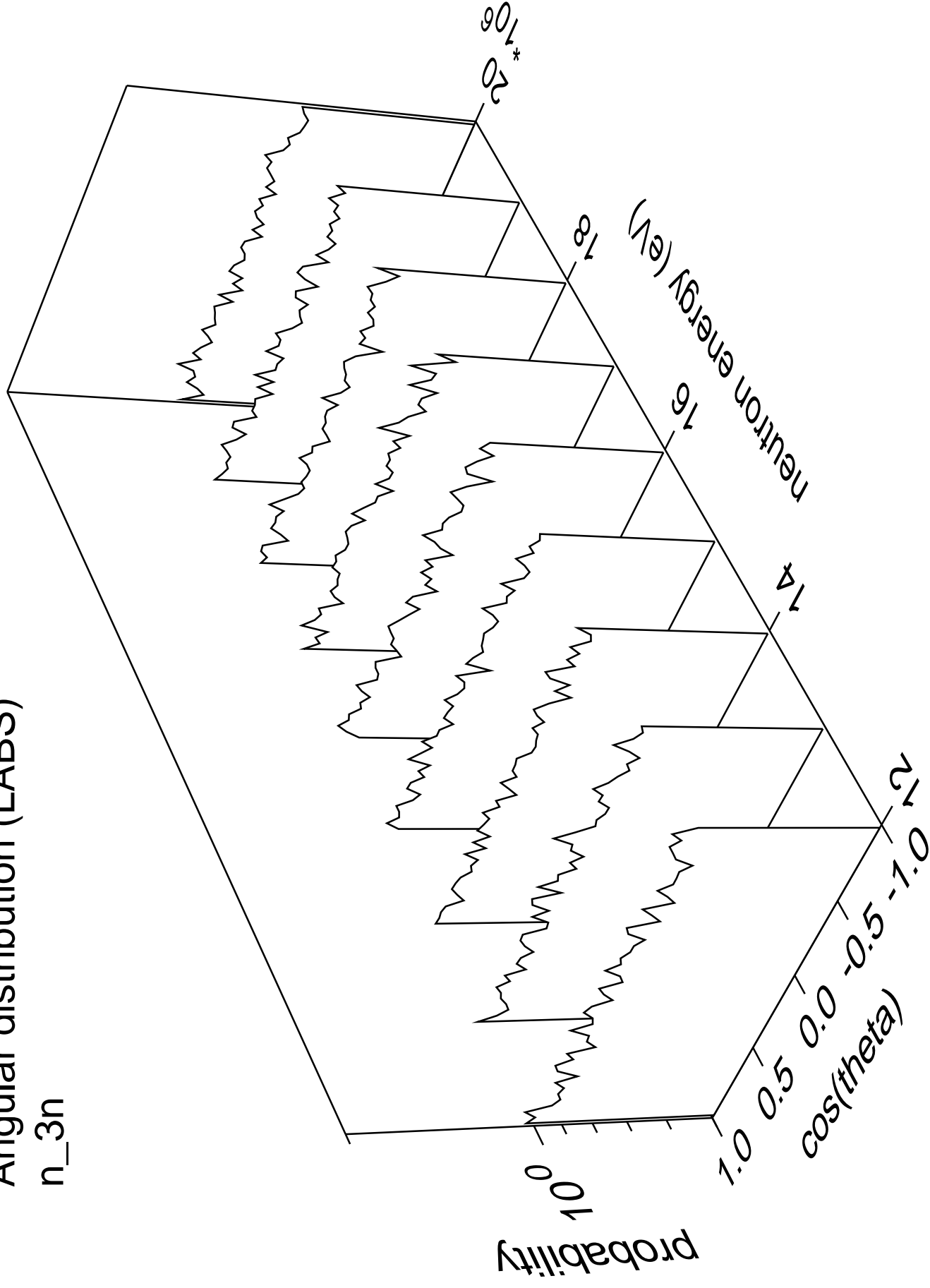
probability

10^0

cos(theta)

1.0  0.5  0.0  -0.5 -1.0

neutron energy (eV)

2

14

16

18

20 *10^6

Angular distribution (LABS)
n_4n

probability

cos(theta)

neutron energy (eV)

1.0  0.5  0.0  -0.5  -1.0

19.0

19.5

20.0
*10⁶

Angular distribution (CMS)
n_n_1

neutron energy (eV)

cos(theta)

probability

Angular distribution (CMS)
n_n_2

probability

cos(theta)

neutron energy (eV)
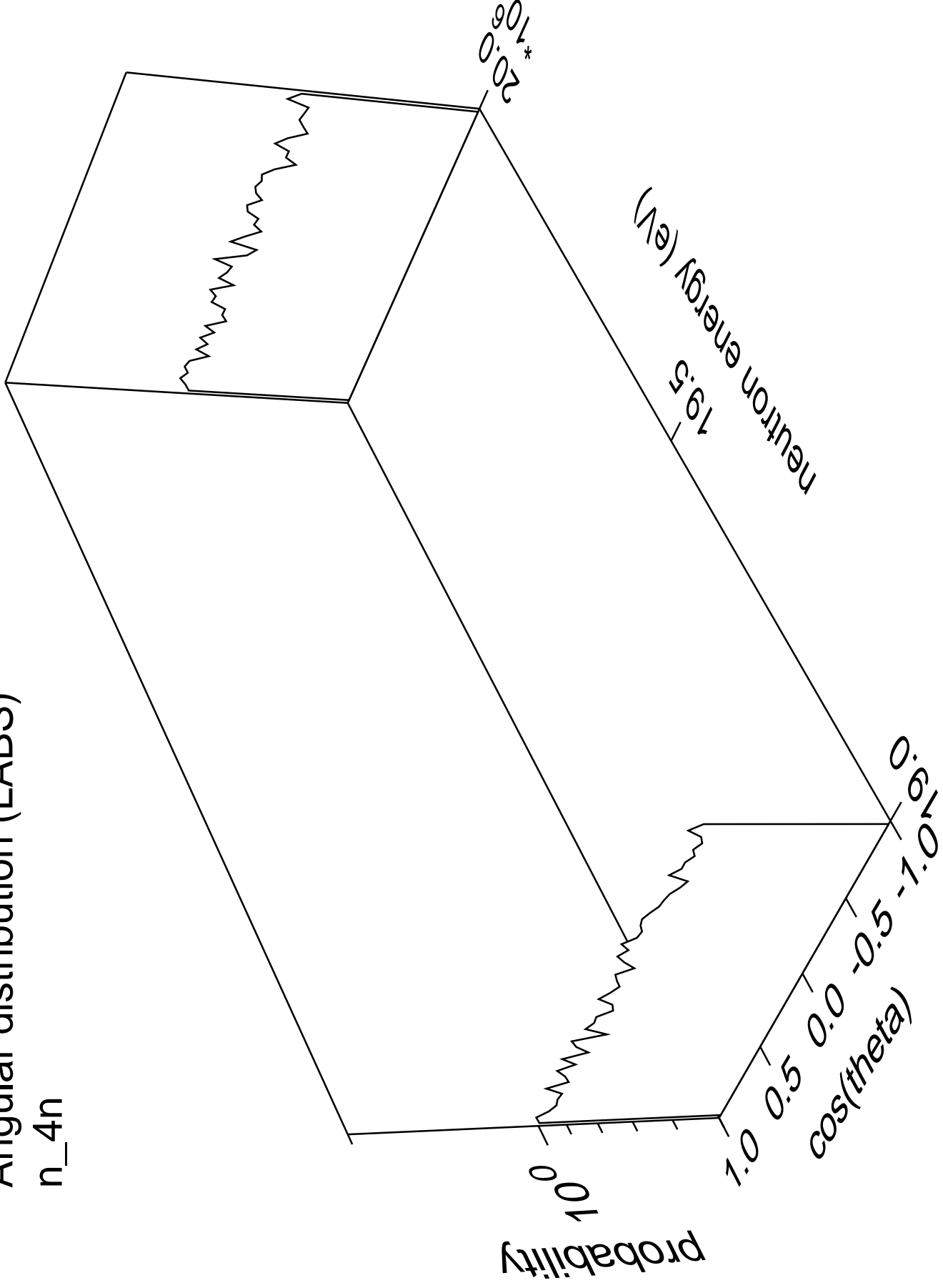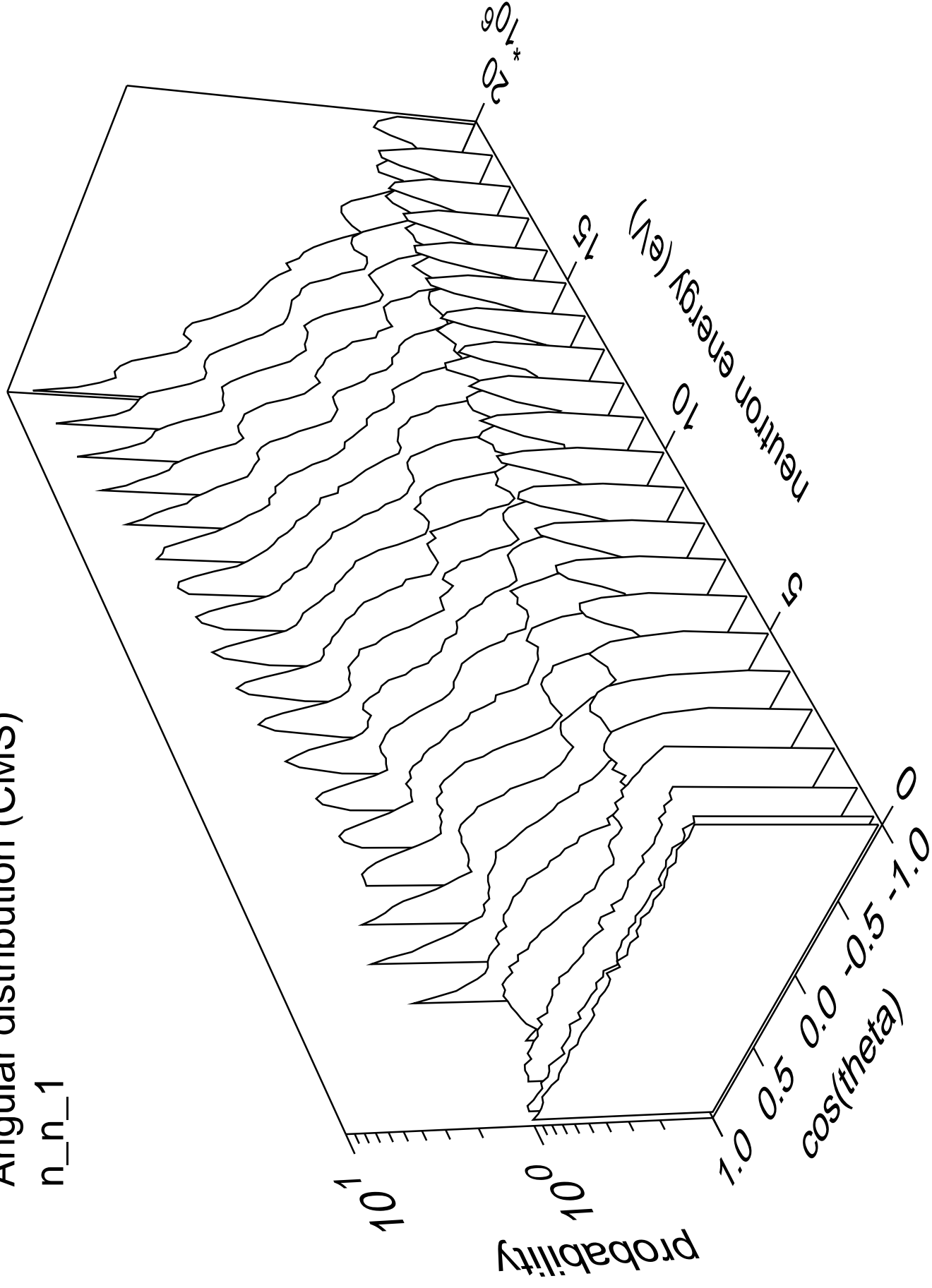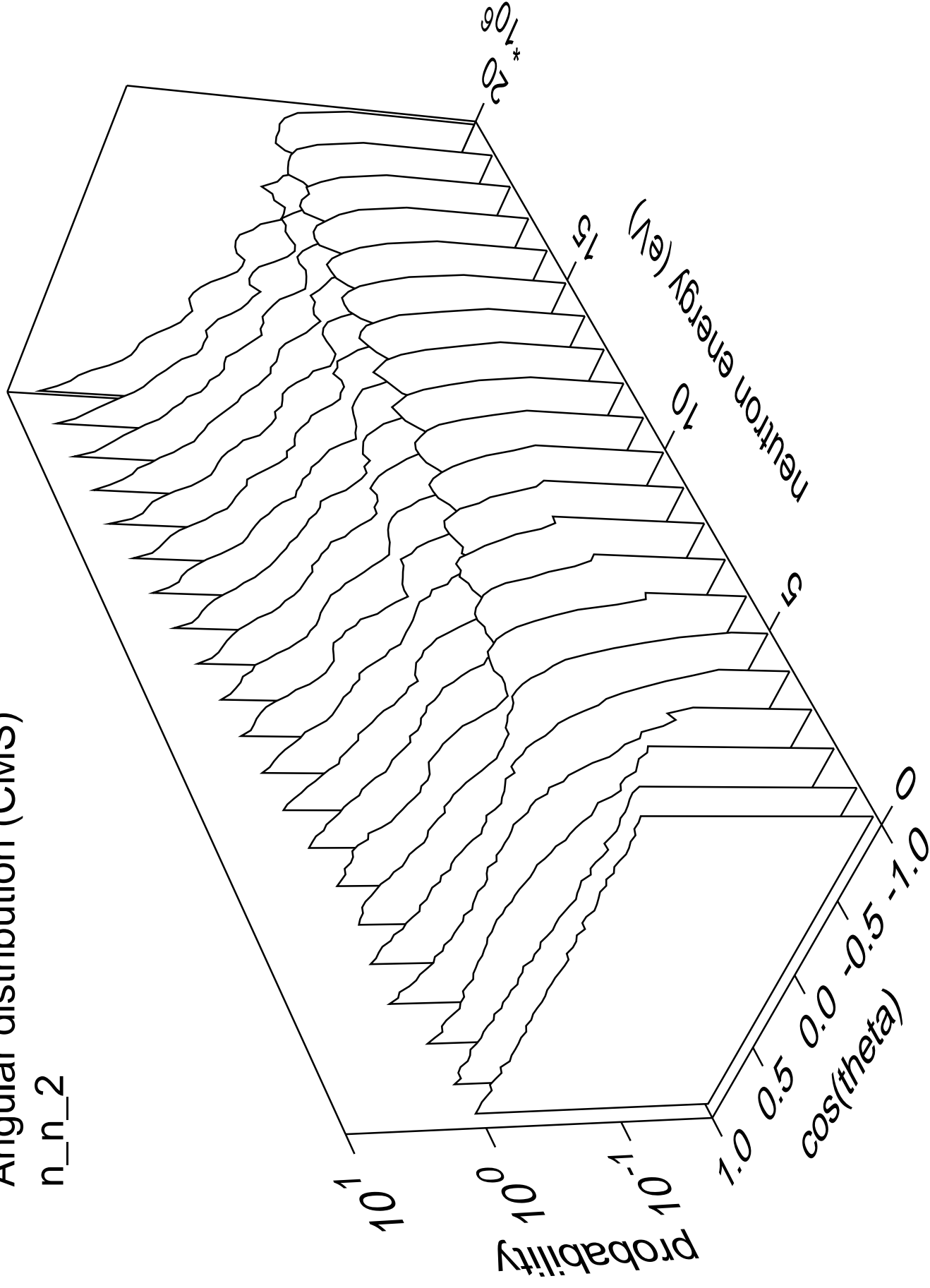
Angular distribution (LABS)
Fission
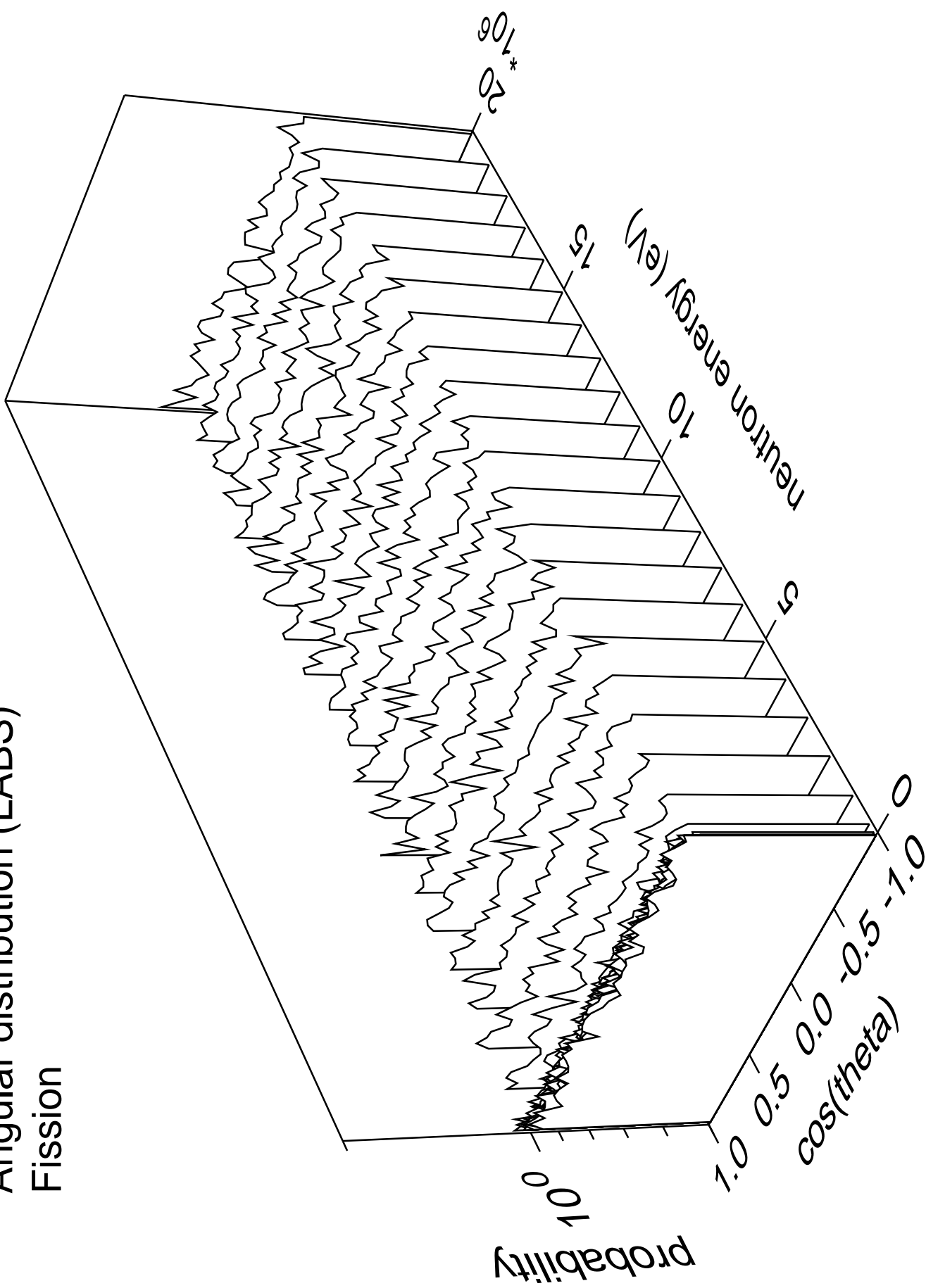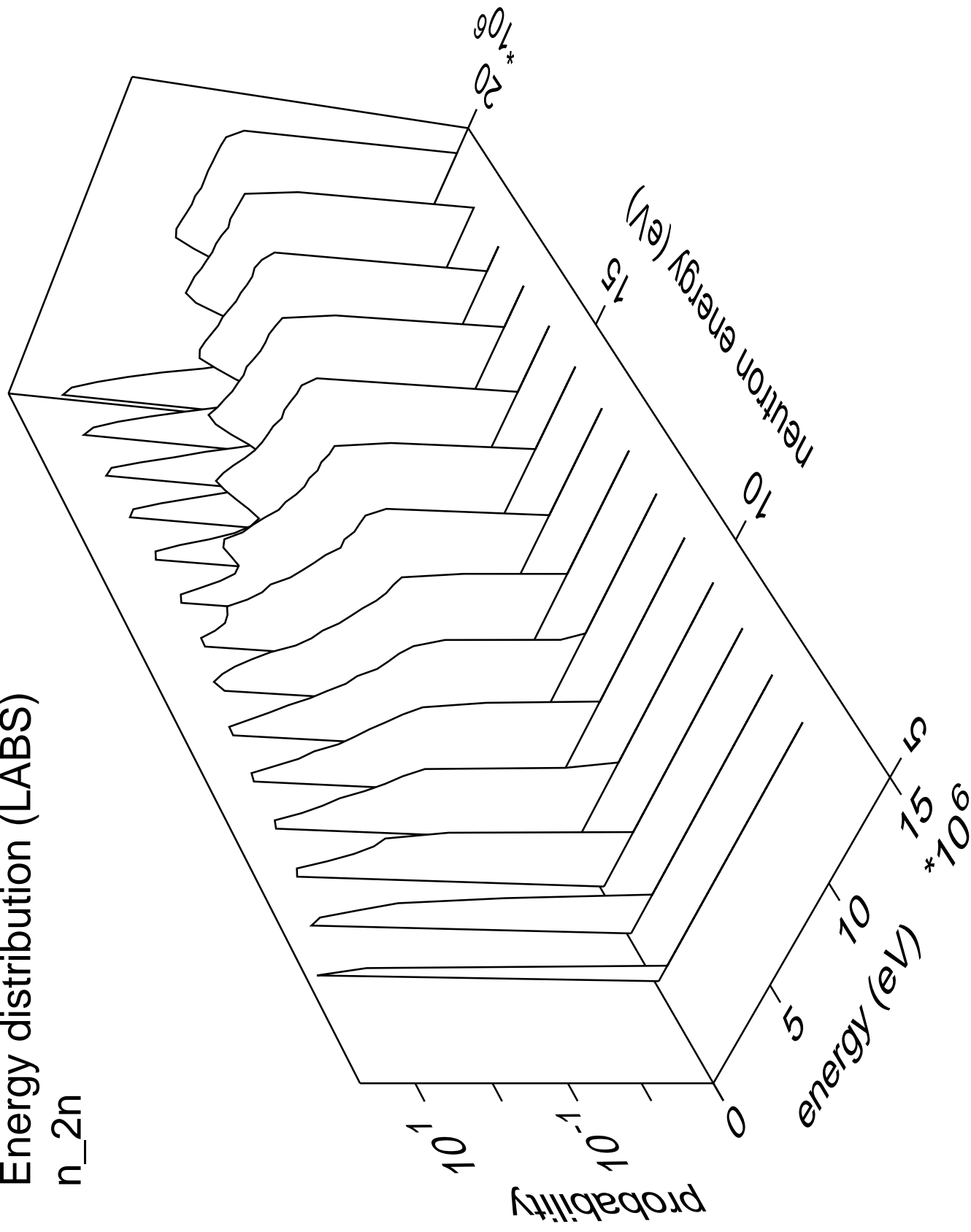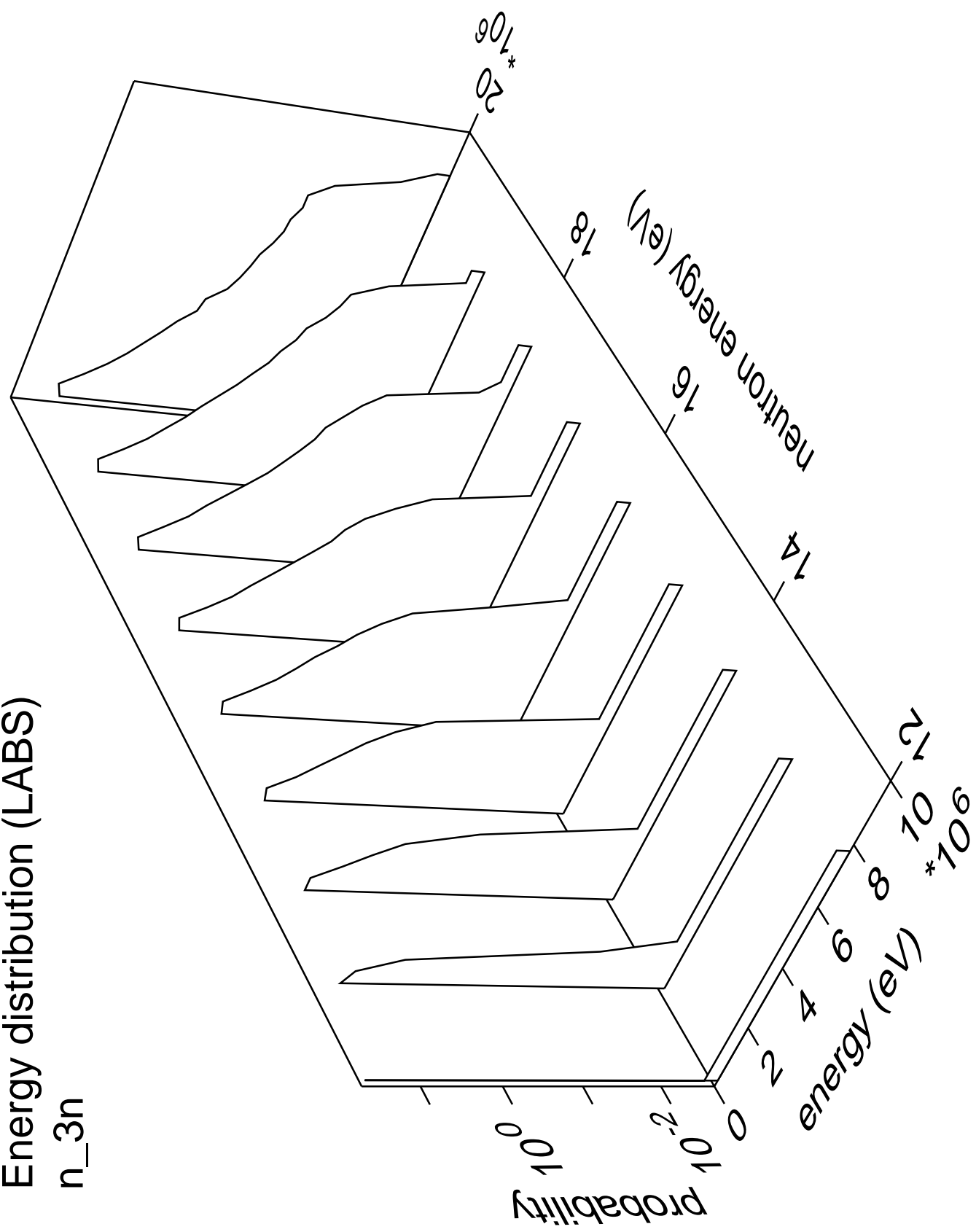
probability

$10^0$

1.0  0.5  0.0  -0.5  -1.0  cos(theta)

0   5   10   15   20 *$10^6$

neutron energy (eV)

Energy distribution (LABS)
n_2n

probability

energy (eV)

neutron energy (eV)

Energy distribution (LABS)
n_3n

probability

energy (eV)

neutron energy (eV)

Energy distribution (LABS)
n_4n

probability

$10^1$

$10^{-1}$

energy (eV)

0

5

10

15

$*10^6$

neutron energy (eV)

19.0

19.5

20.0

$*10^6$

Energy distribution (LABS)
n_n_cont

probability

energy (eV)  *10⁶

neutron energy (eV)
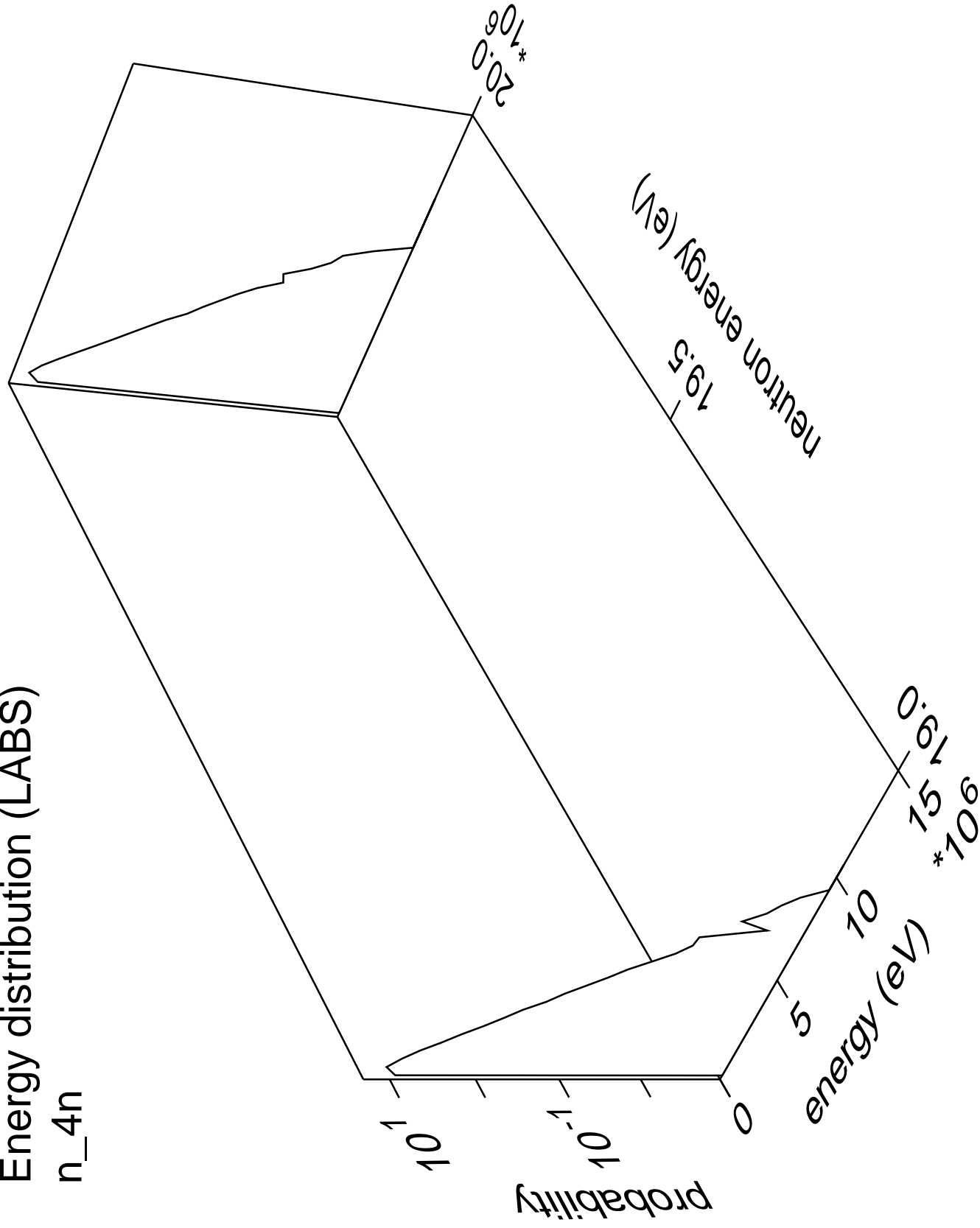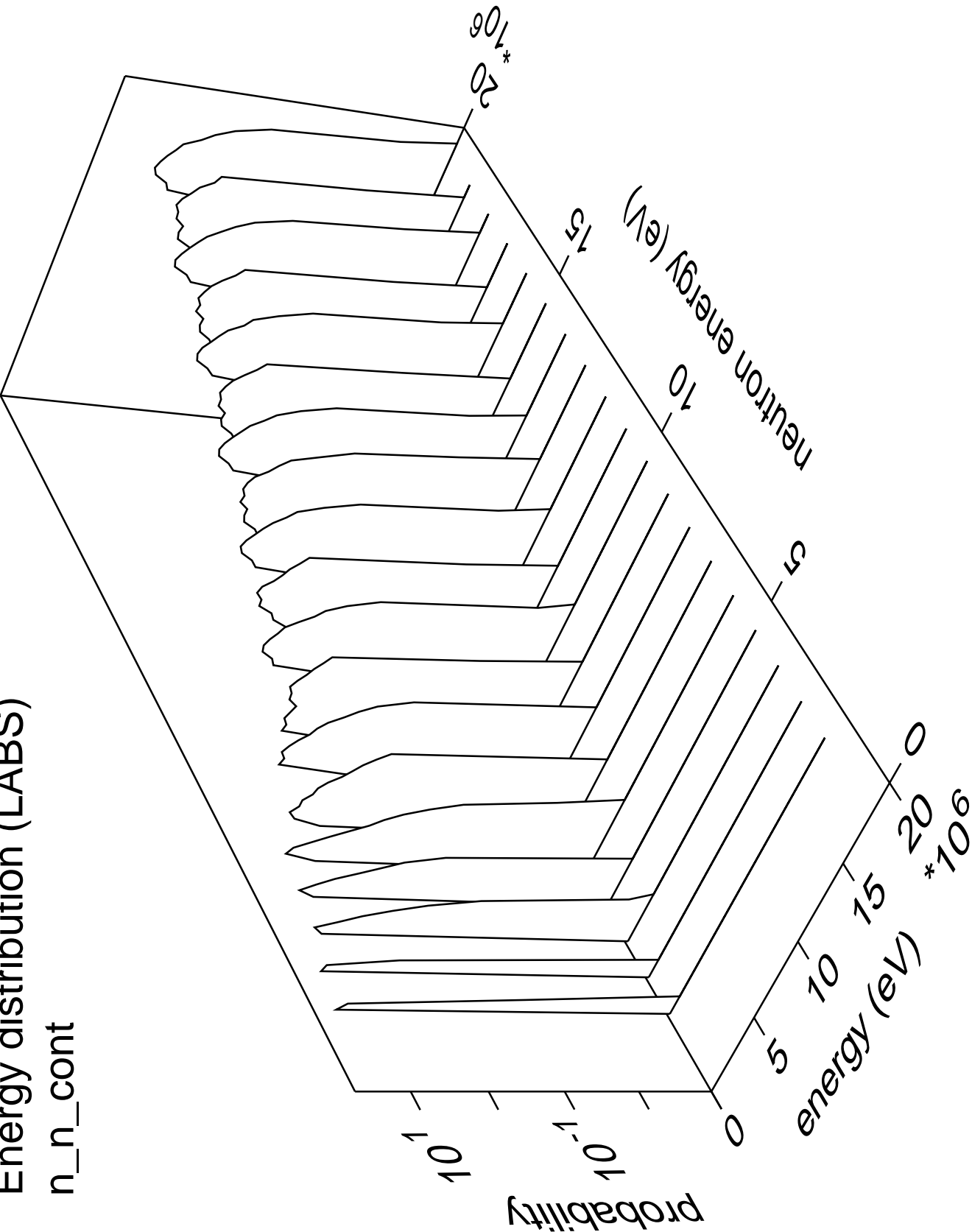
Energy distribution (CMS)
Fission prompt

probability

neutron energy (eV)
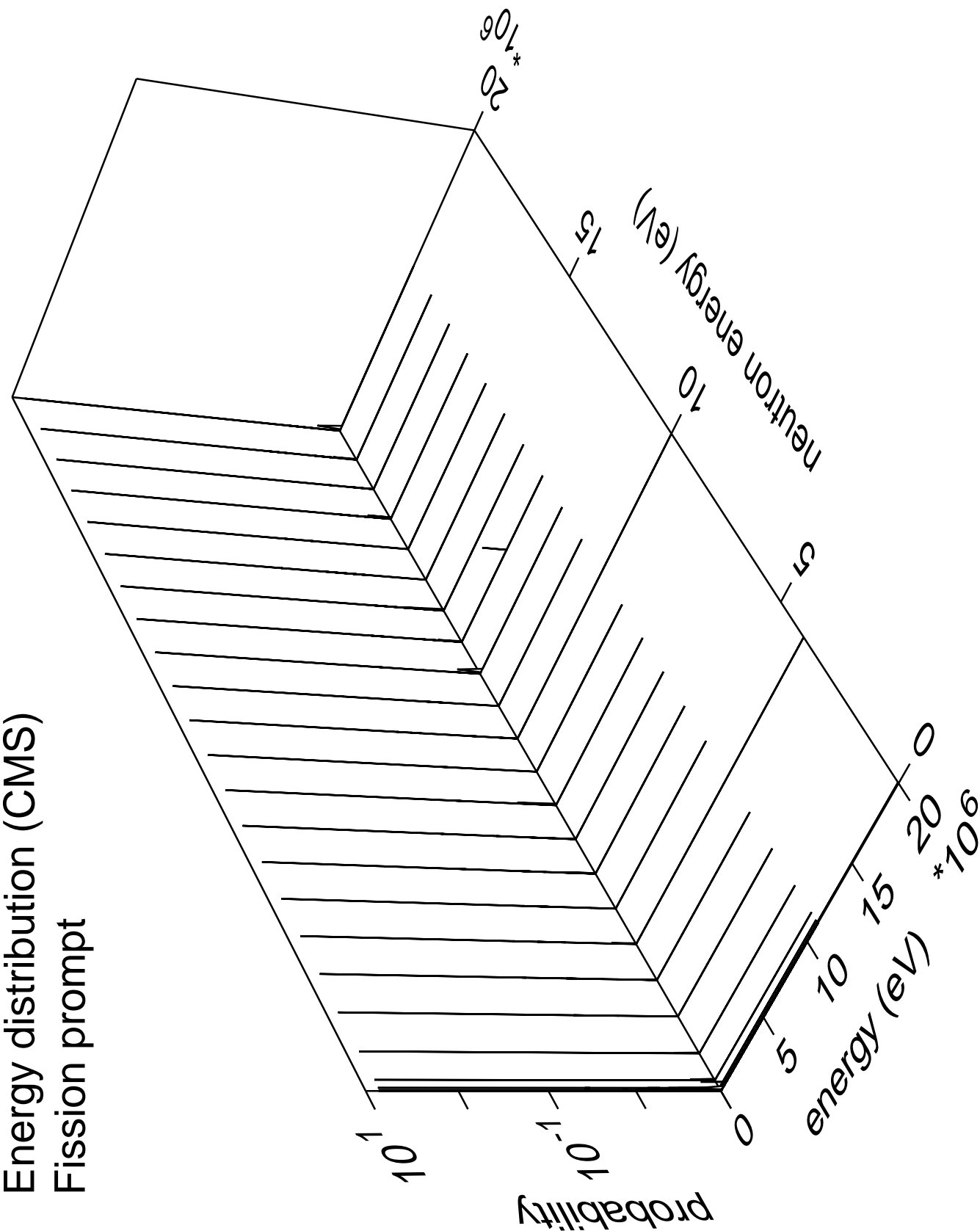
energy (eV)

Energy distribution (CMS)
Fission delayed
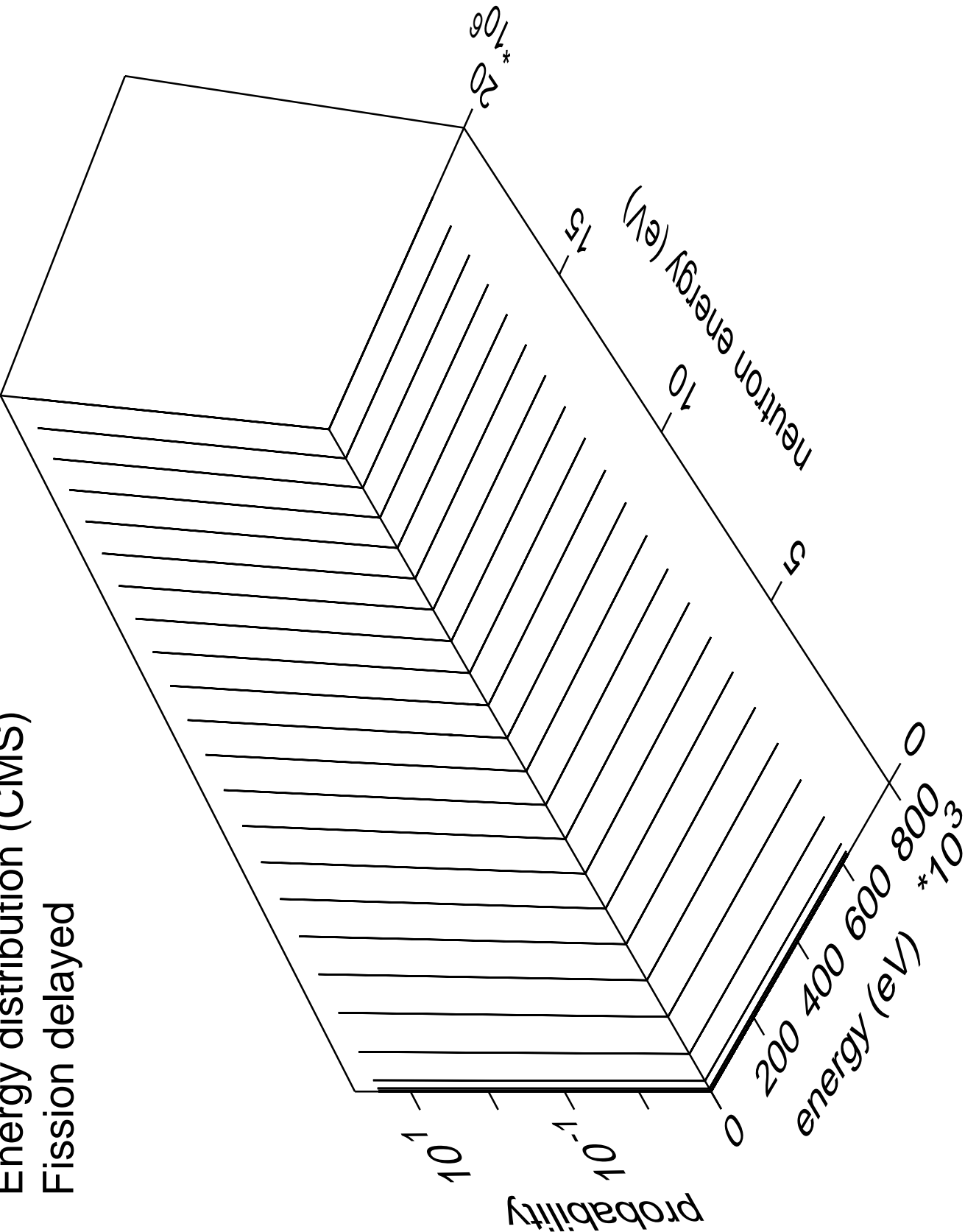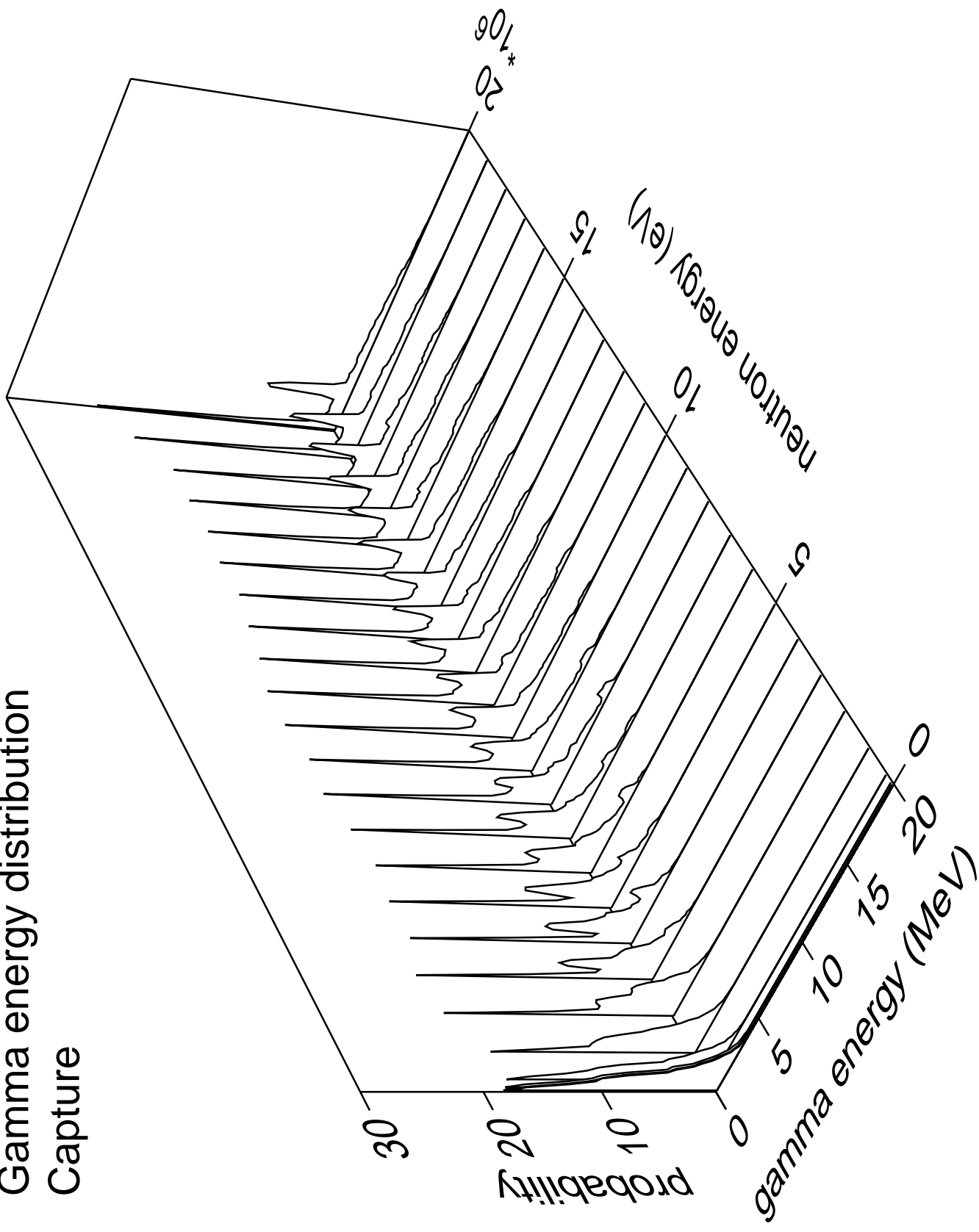
neutron energy (eV)

20 *10⁶

15

10

5

0

energy (eV) *10³

0 200 400 600 800

probability

10¹

10⁻¹

Gamma energy distribution
Capture

probability

neutron energy (eV)

gamma energy (MeV)

20 *10⁶

Gamma angles distribution
Capture

probability

neutron energy (eV)

cos(theta)

$20$ $*10^6$

$15$

$10$

$5$

$0$

$1.0$ $0.5$ $0.0$ $-0.5$ $-1.0$

$10^0$

Gamma multiplicities distribution
Capture

probability

multiplicity

neutron energy (eV)

20 *10⁶

Gamma energy distribution
n_2n

probability

gamma energy (MeV)

neutron energy (eV)

20 *10⁶

15

10

5

0    5    10   15   20

60

40

20

Gamma angles distribution
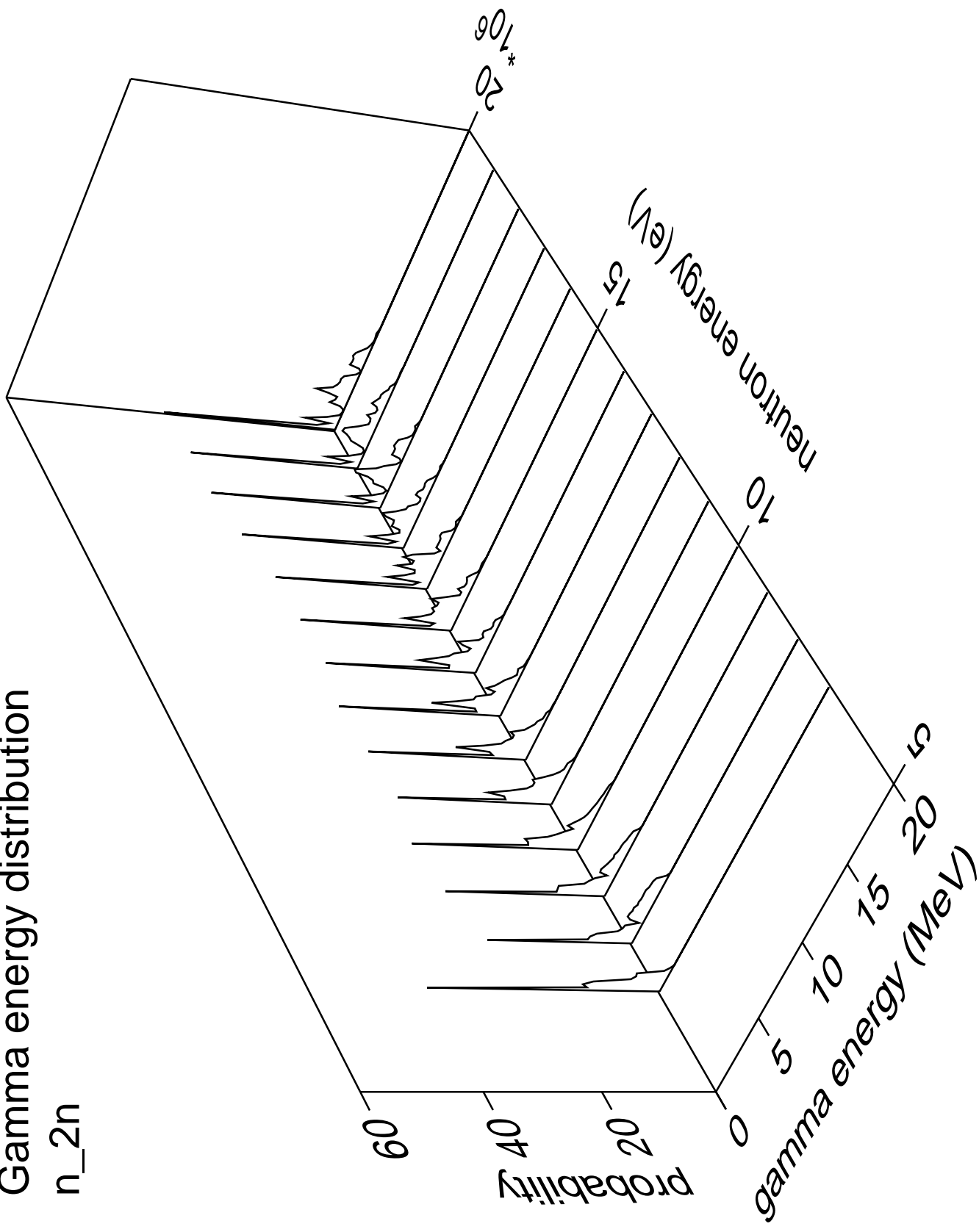n_2n

probability

neutron energy (eV)

cos(theta)
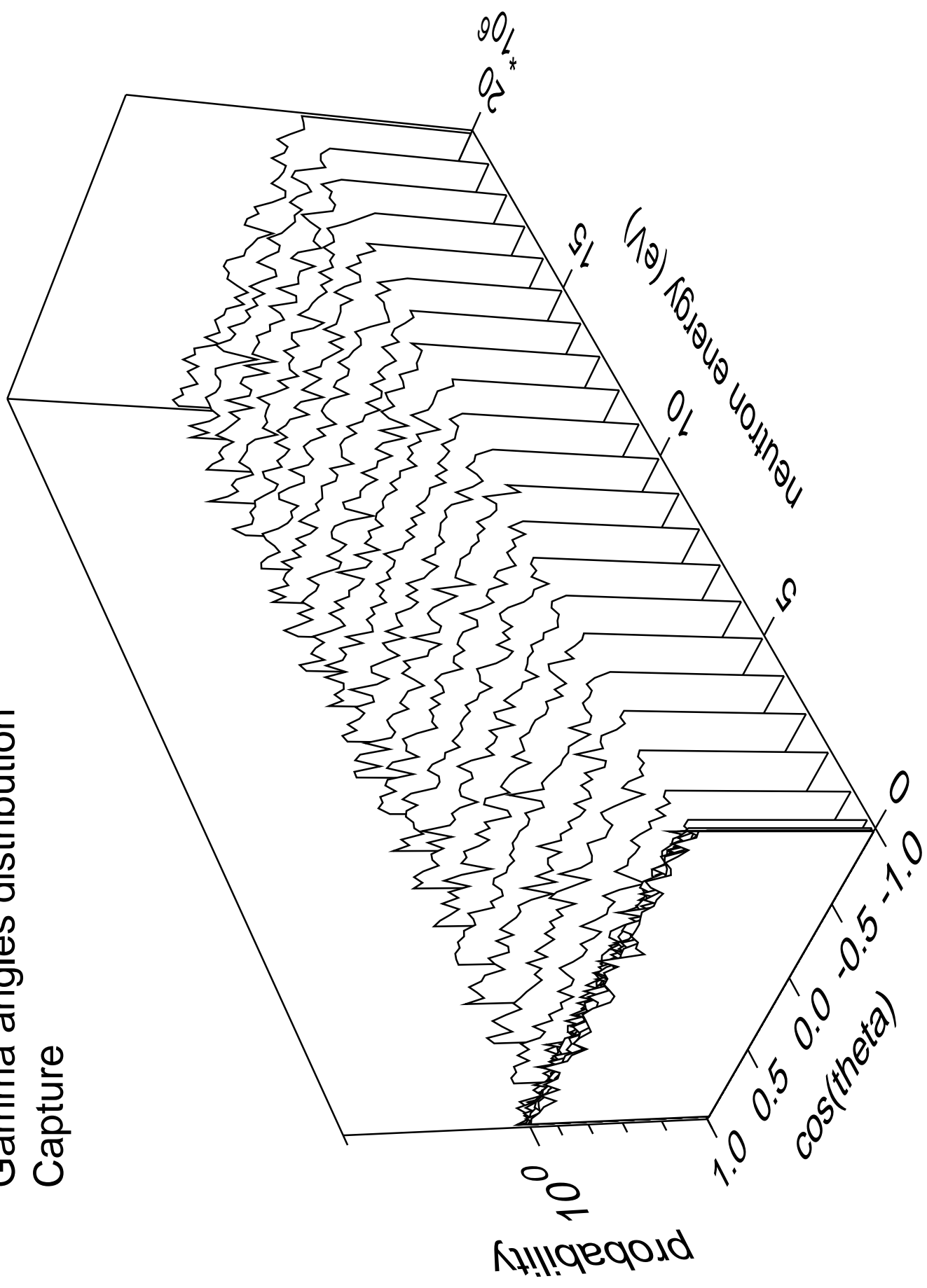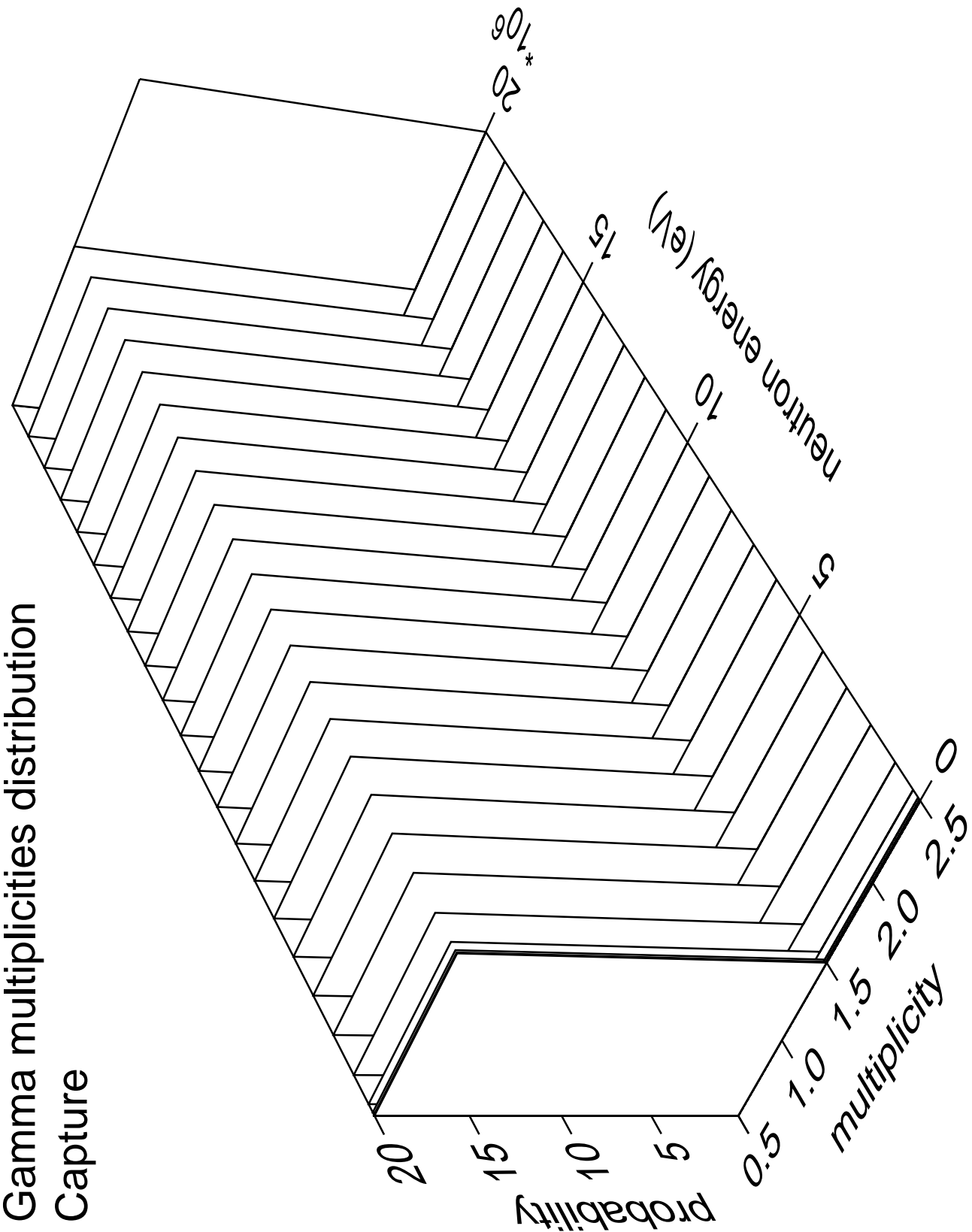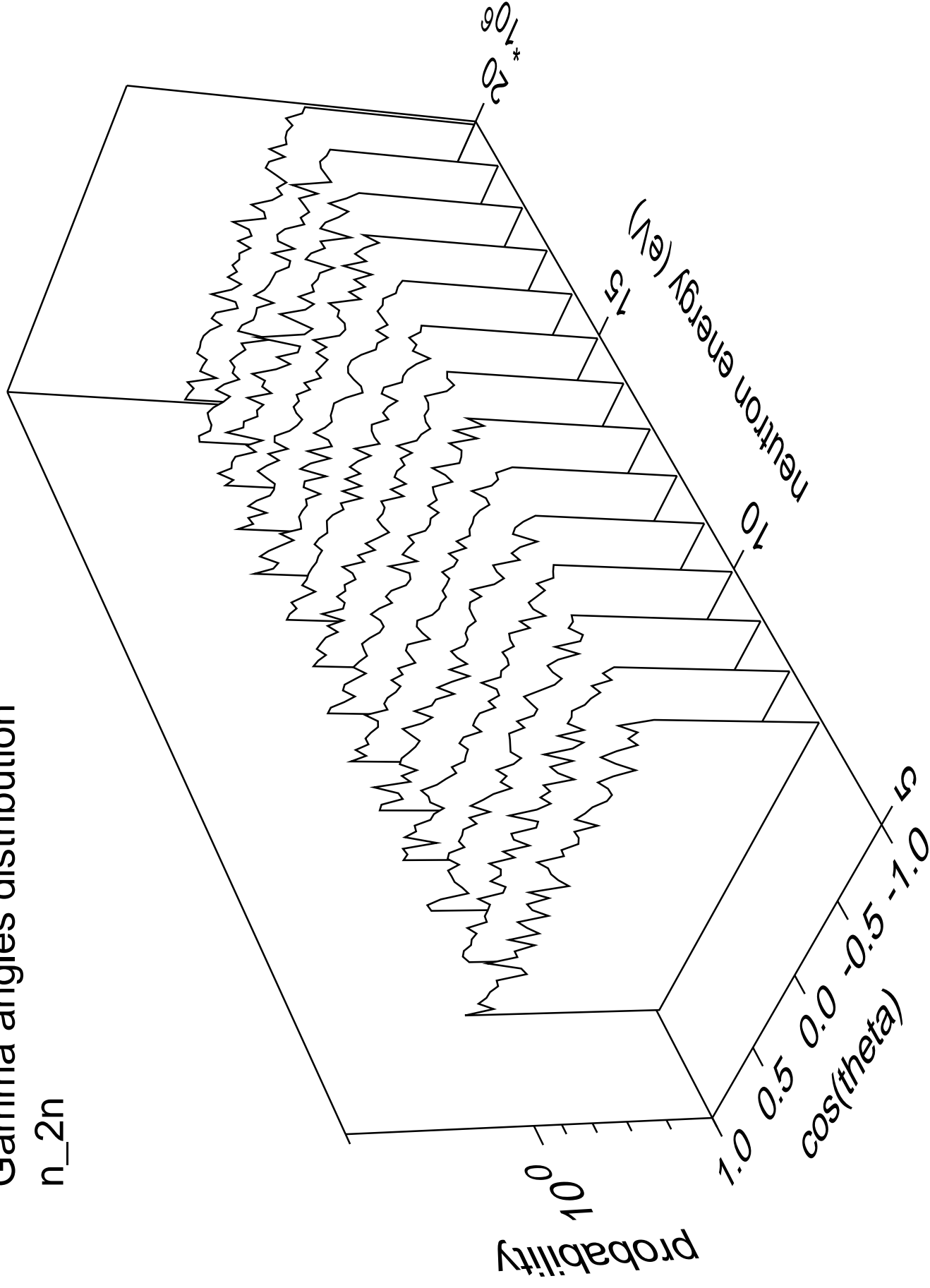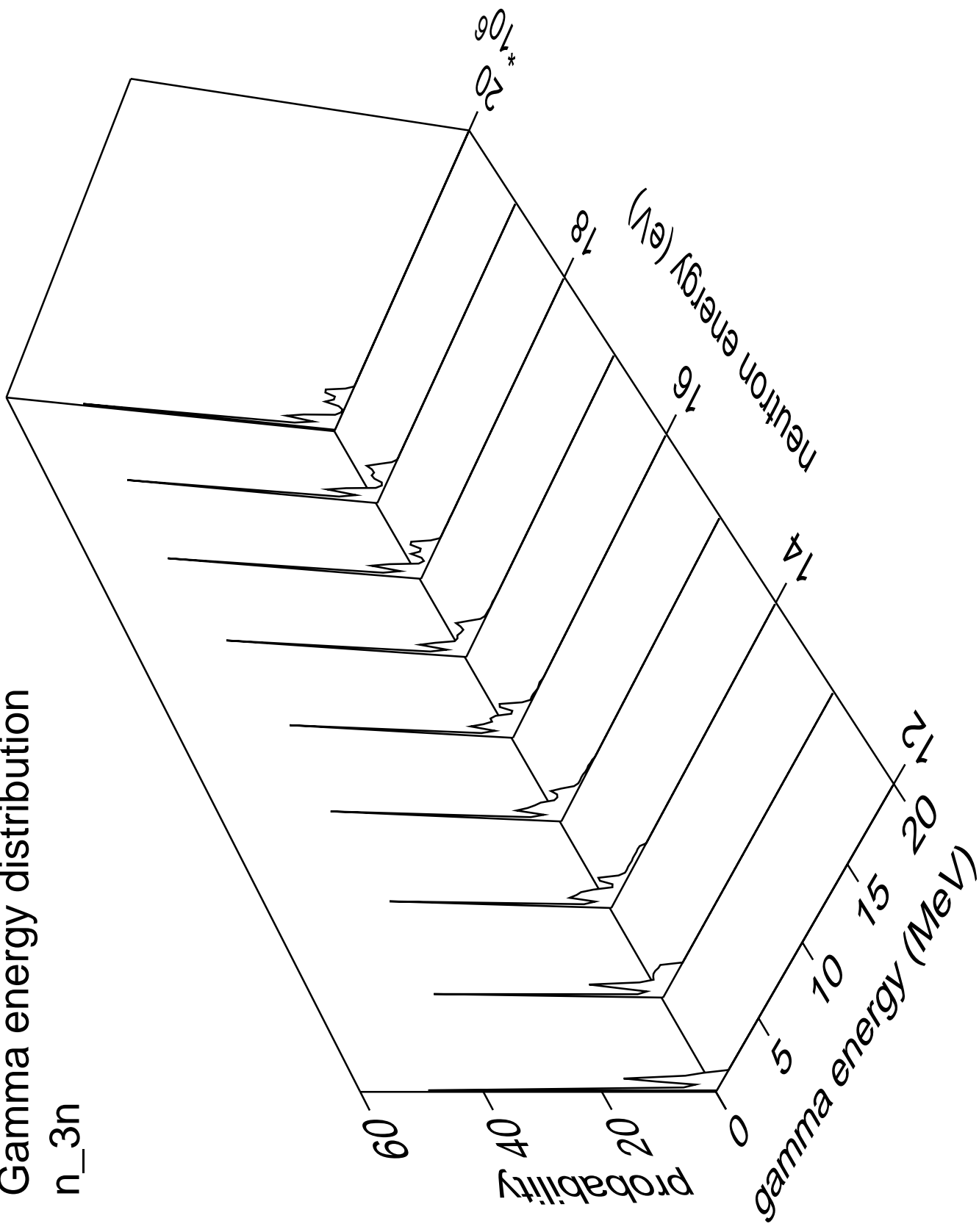
Gamma multiplicities distribution
n_2n
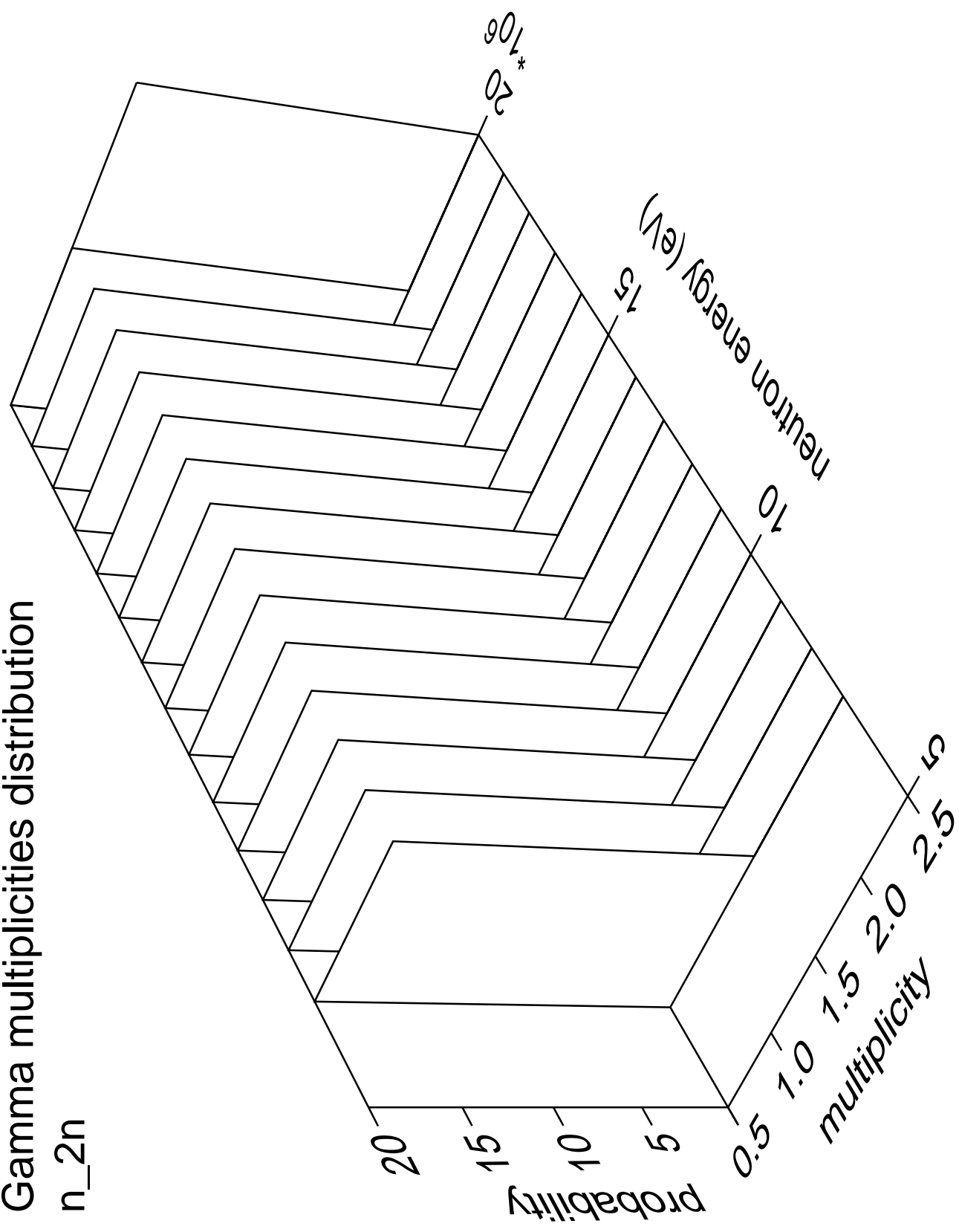
Gamma energy distribution
n_3n

Gamma angles distribution
n_3n
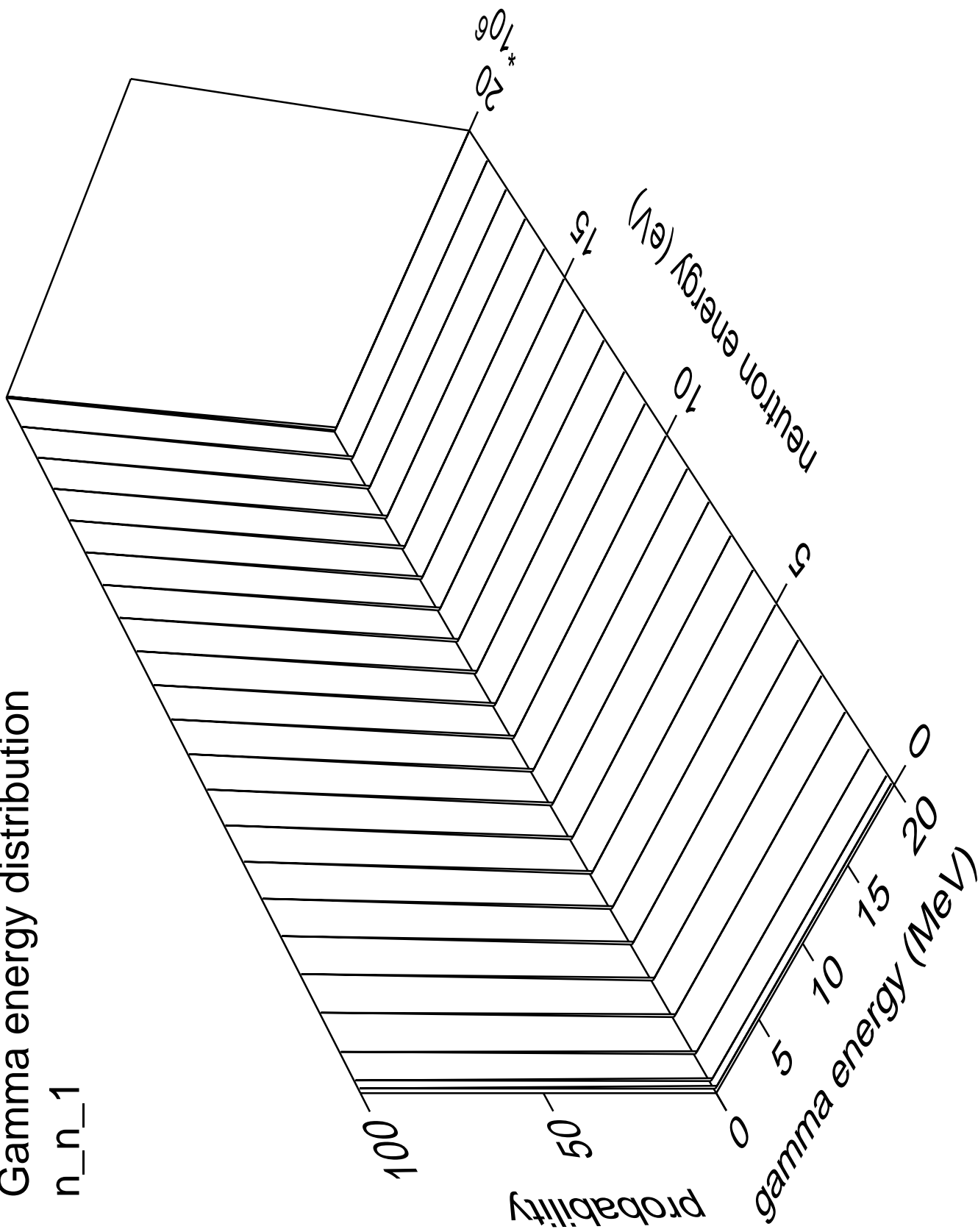
neutron energy (eV)

cos(theta)

probability

Gamma multiplicities distribution
n_3n

neutron energy (eV)

multiplicity

probability
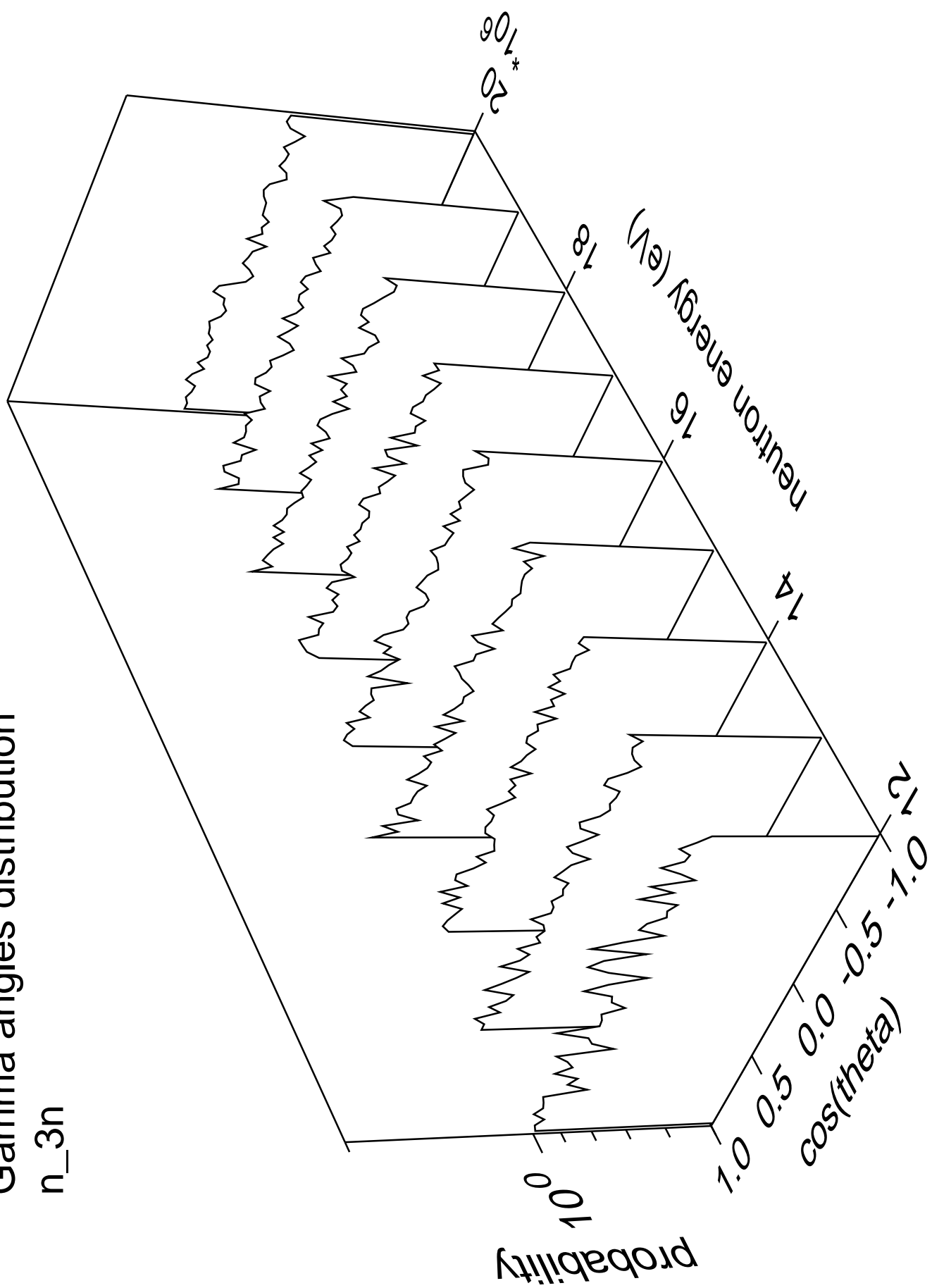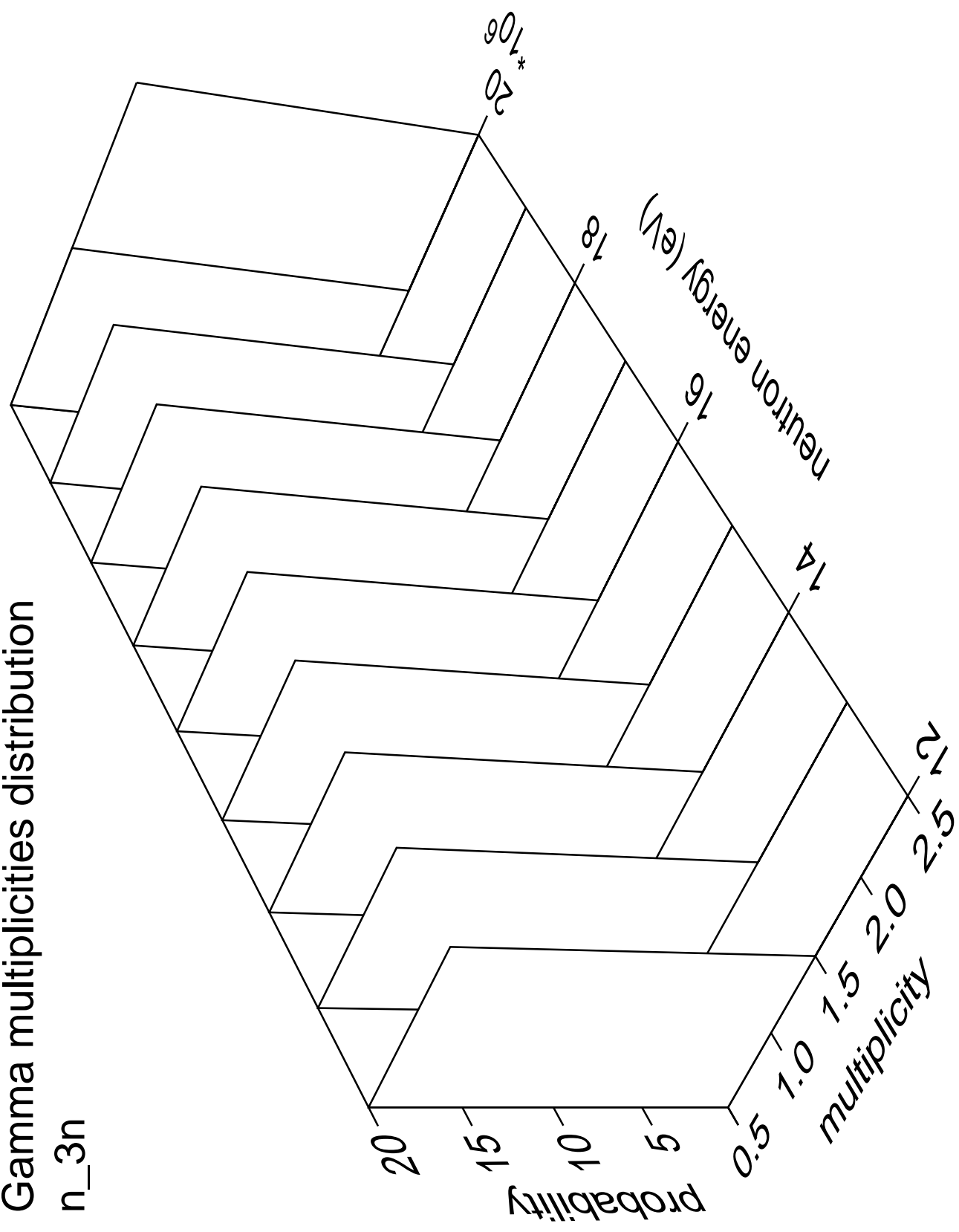
Gamma energy distribution
n_n_1

Gamma angles distribution
n_n_1
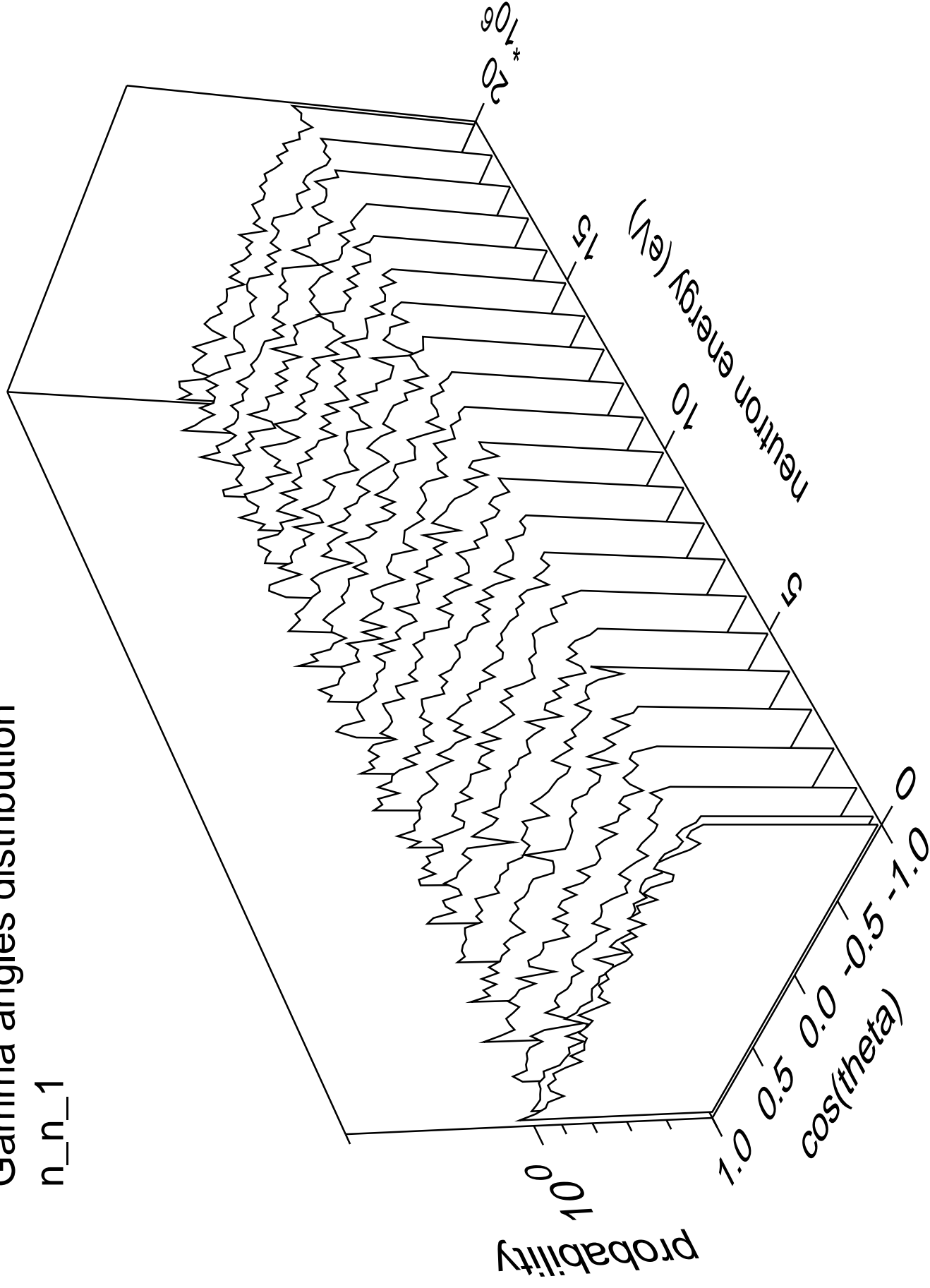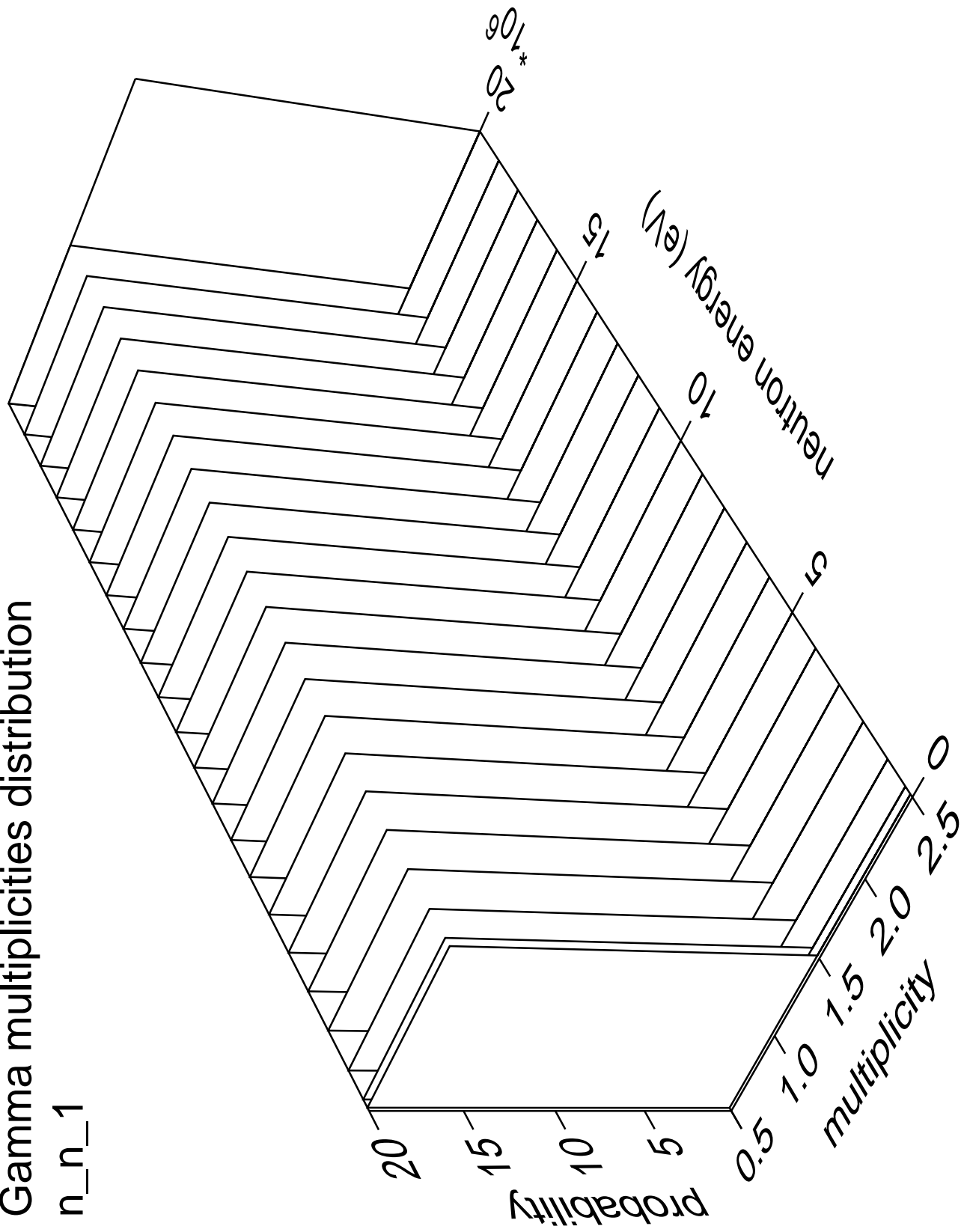
probability

neutron energy (eV)

cos(theta)

20 *10⁶

15

10

5

0

1.0  0.5  0.0  -0.5  -1.0

Gamma multiplicities distribution
n_n_1

neutron energy (eV)

multiplicity

probability

Gamma energy distribution
n_n_2

probability

neutron energy (eV)

gamma energy (MeV)

100

50

0

5

10

15

20 *10⁶

0

5

10

15

20

Gamma angles distribution
n_n_2

probability

cos(theta)

neutron energy (eV)

1.0 0.5 0.0 -0.5 -1.0

0 5 10 15 20 *10⁶
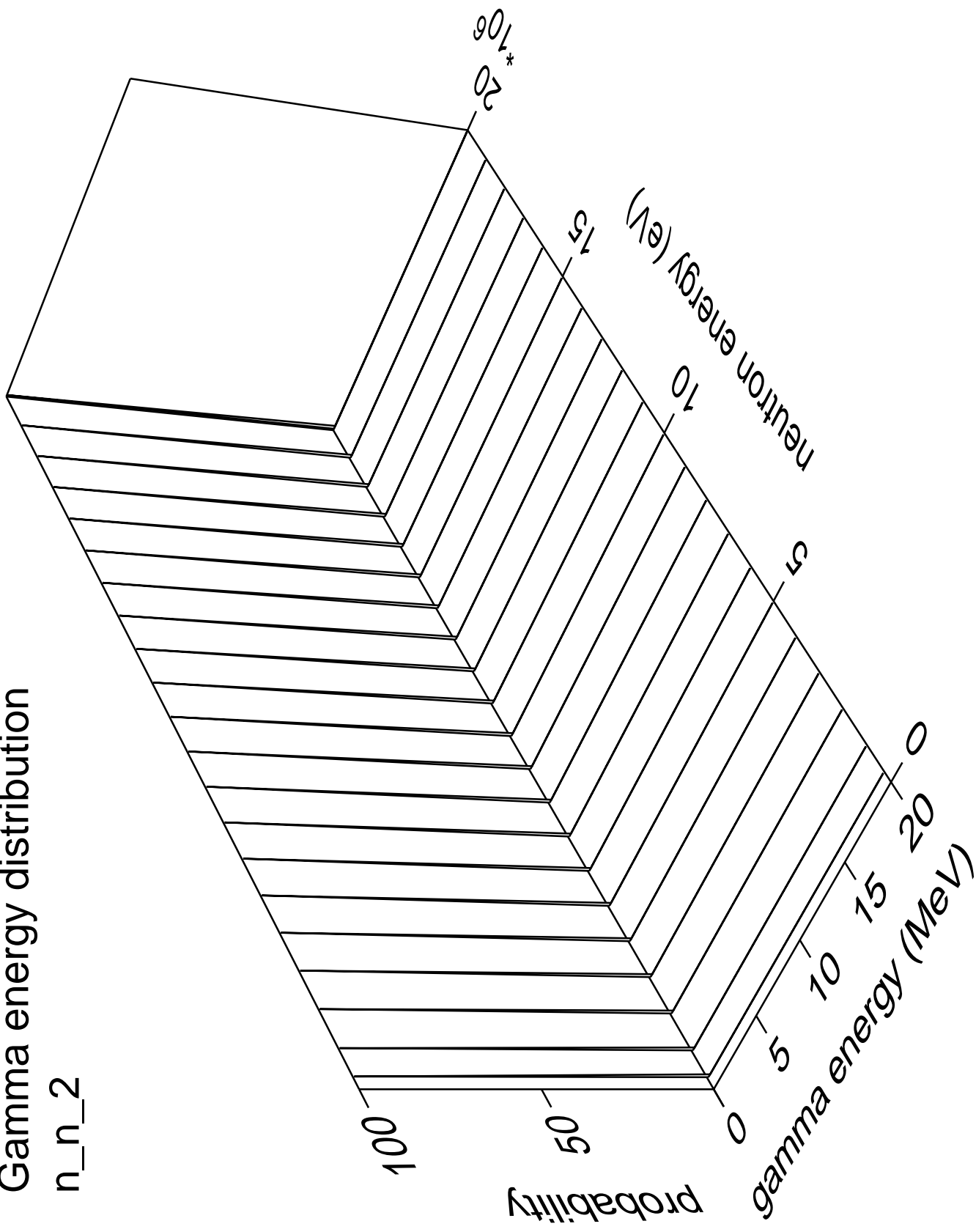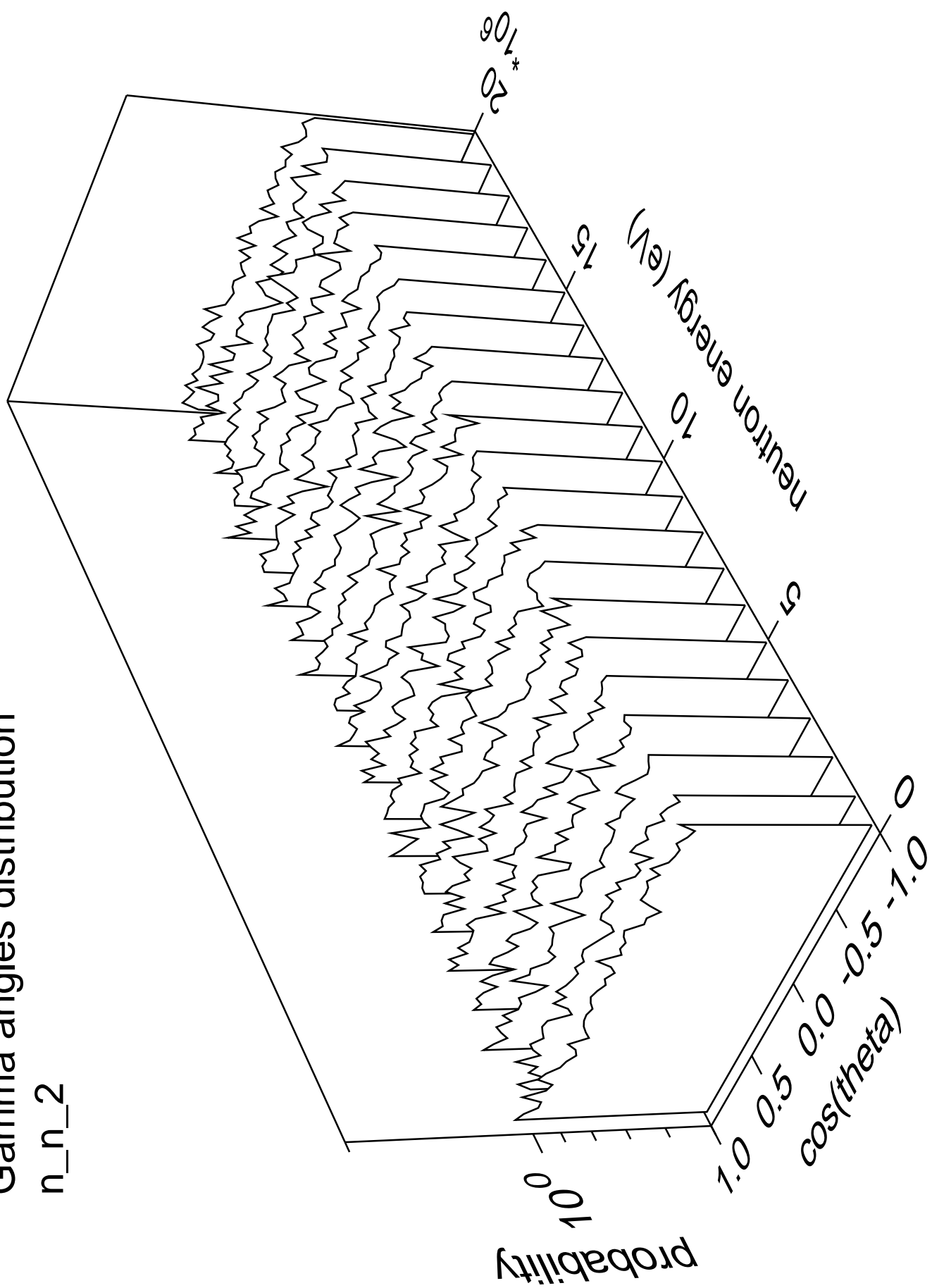
Gamma multiplicities distribution
n_n_2

Gamma energy distribution
n_n_3
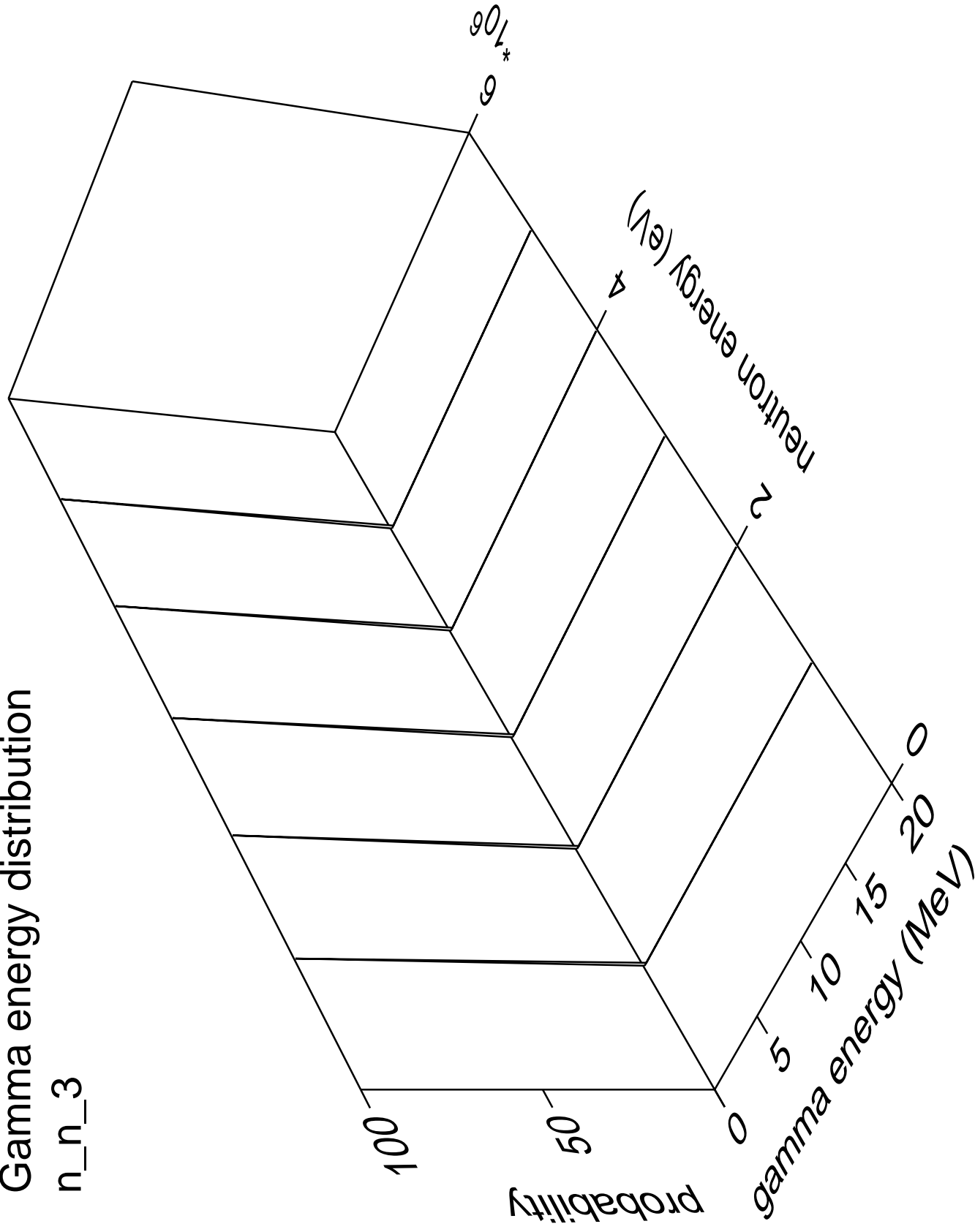
probability

100

50

gamma energy (MeV)

0    5    10    15    20

neutron energy (eV)

2    4    6 *10⁶

Gamma angles distribution
n_n_3

probability

neutron energy (eV)

cos(theta)

6 * 10^6

4

2

0

1.0   0.5   0.0   -0.5   -1.0

10^0

Gamma multiplicities distribution
n_n_3

probability

multiplicity

neutron energy (eV)

Gamma energy distribution
n_n_4

probability

100

50

gamma energy (MeV)

0    5    10    15    20

0

2

4

neutron energy (eV)

6 *10⁶

Gamma angles distribution
n_n_4

neutron energy (eV)

cos(theta)

probability
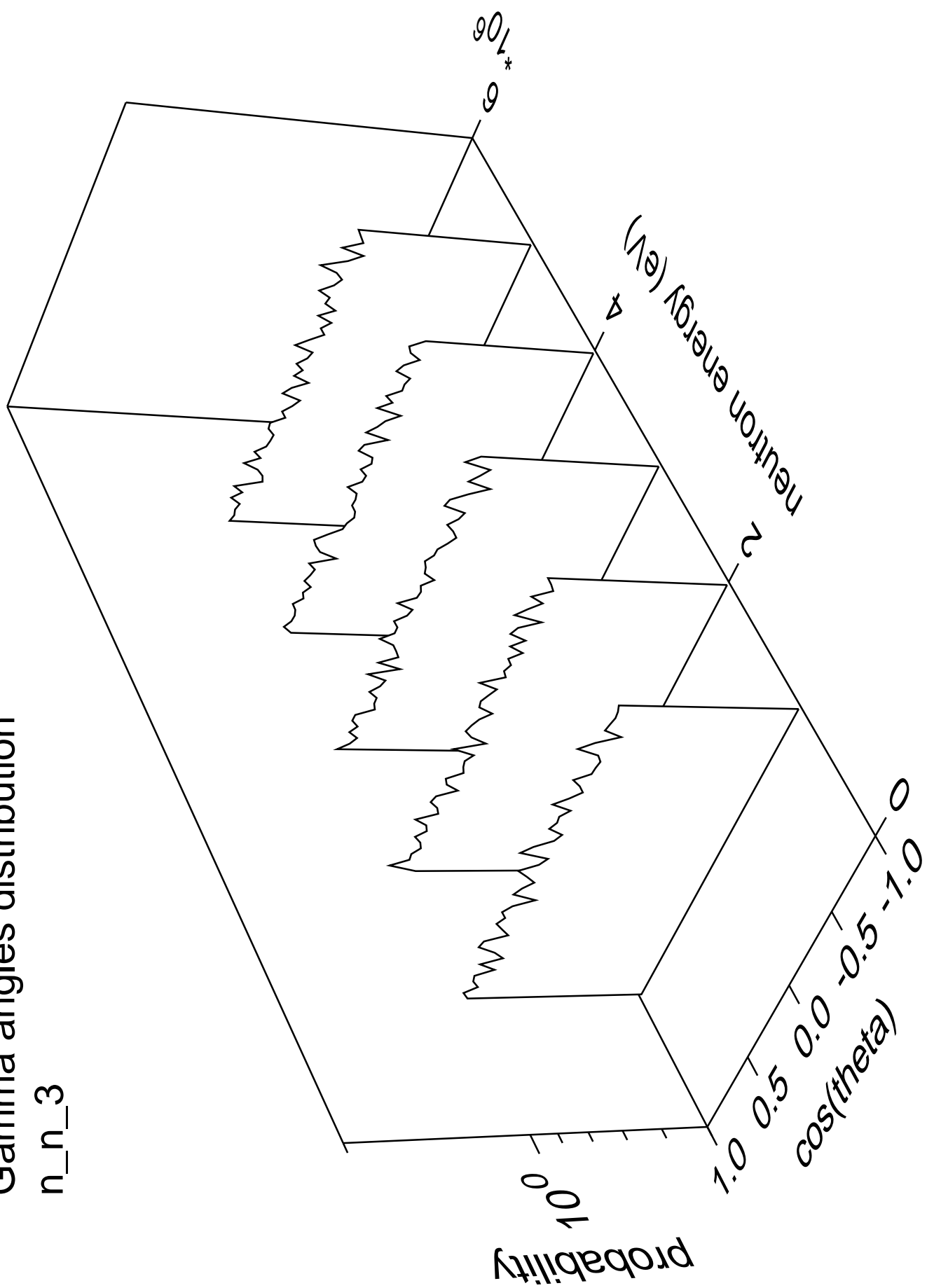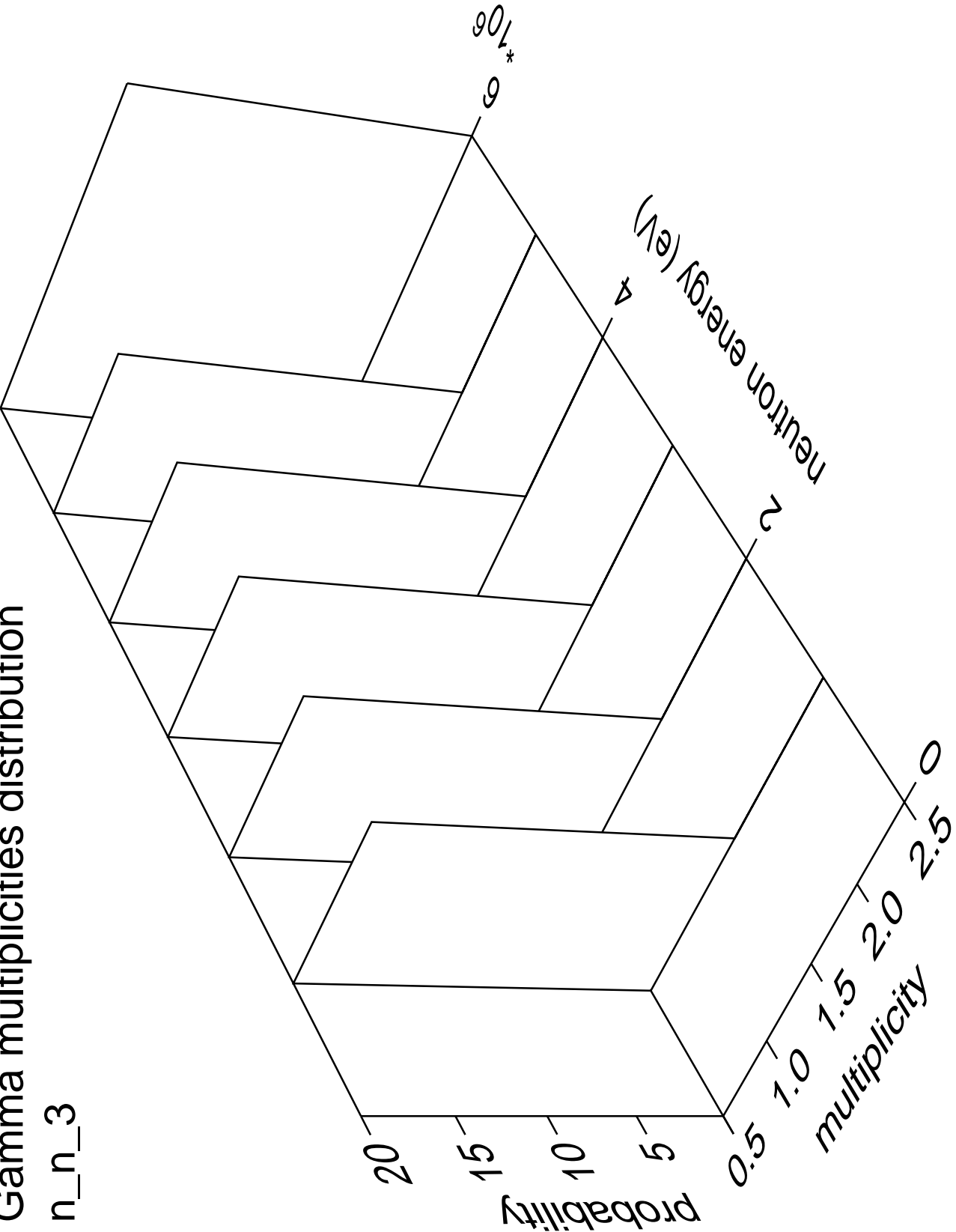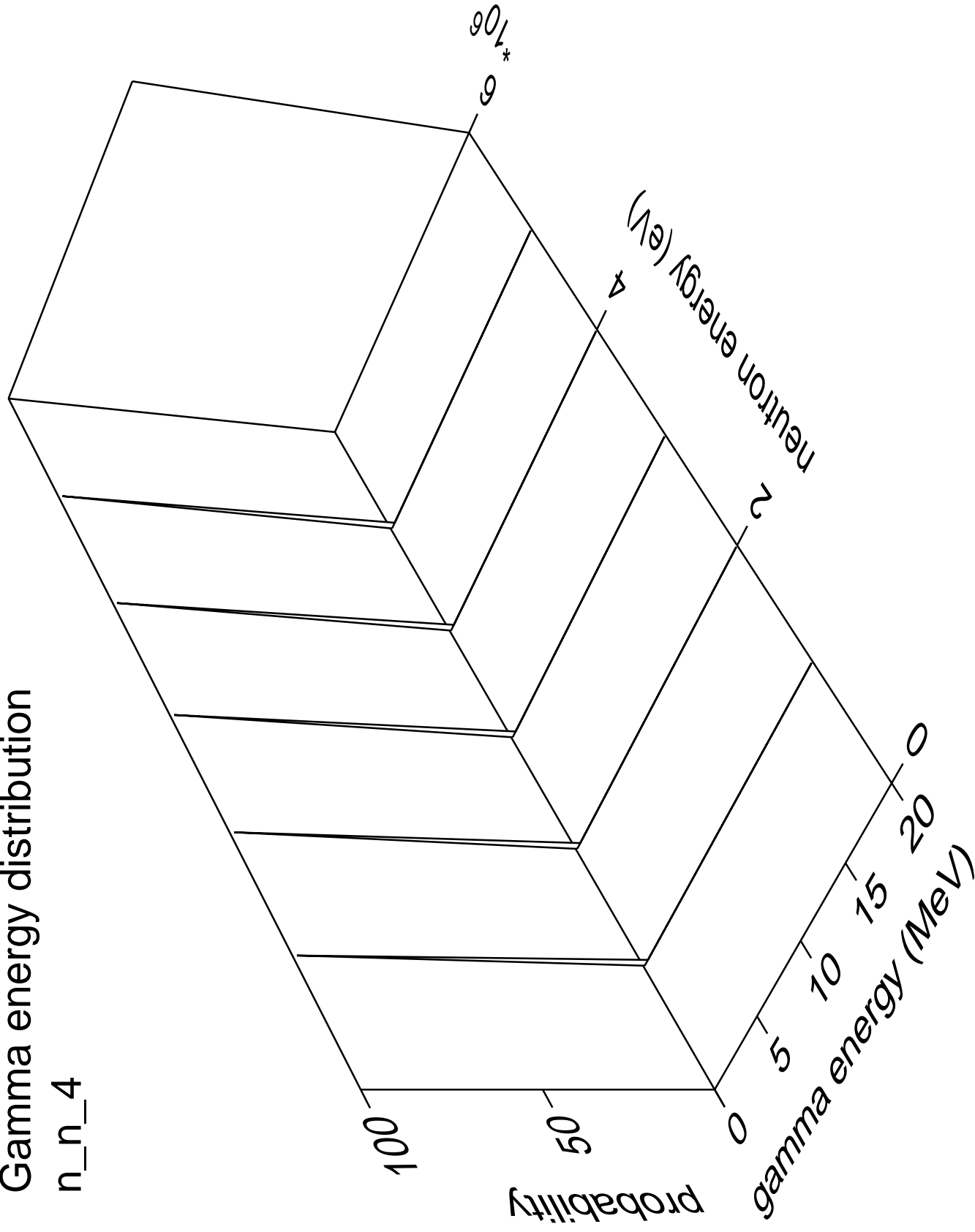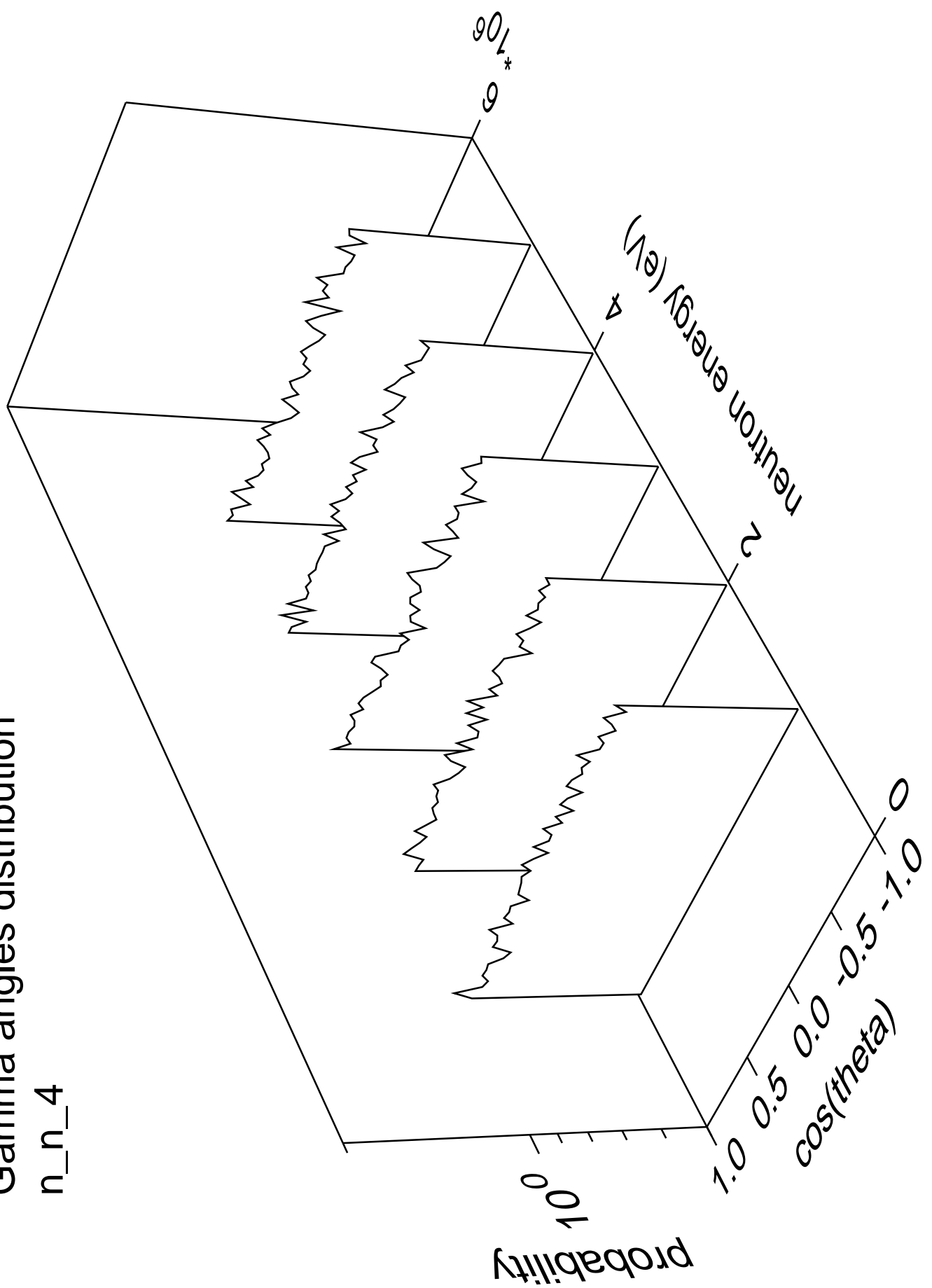
Gamma multiplicities distribution
n_n_4
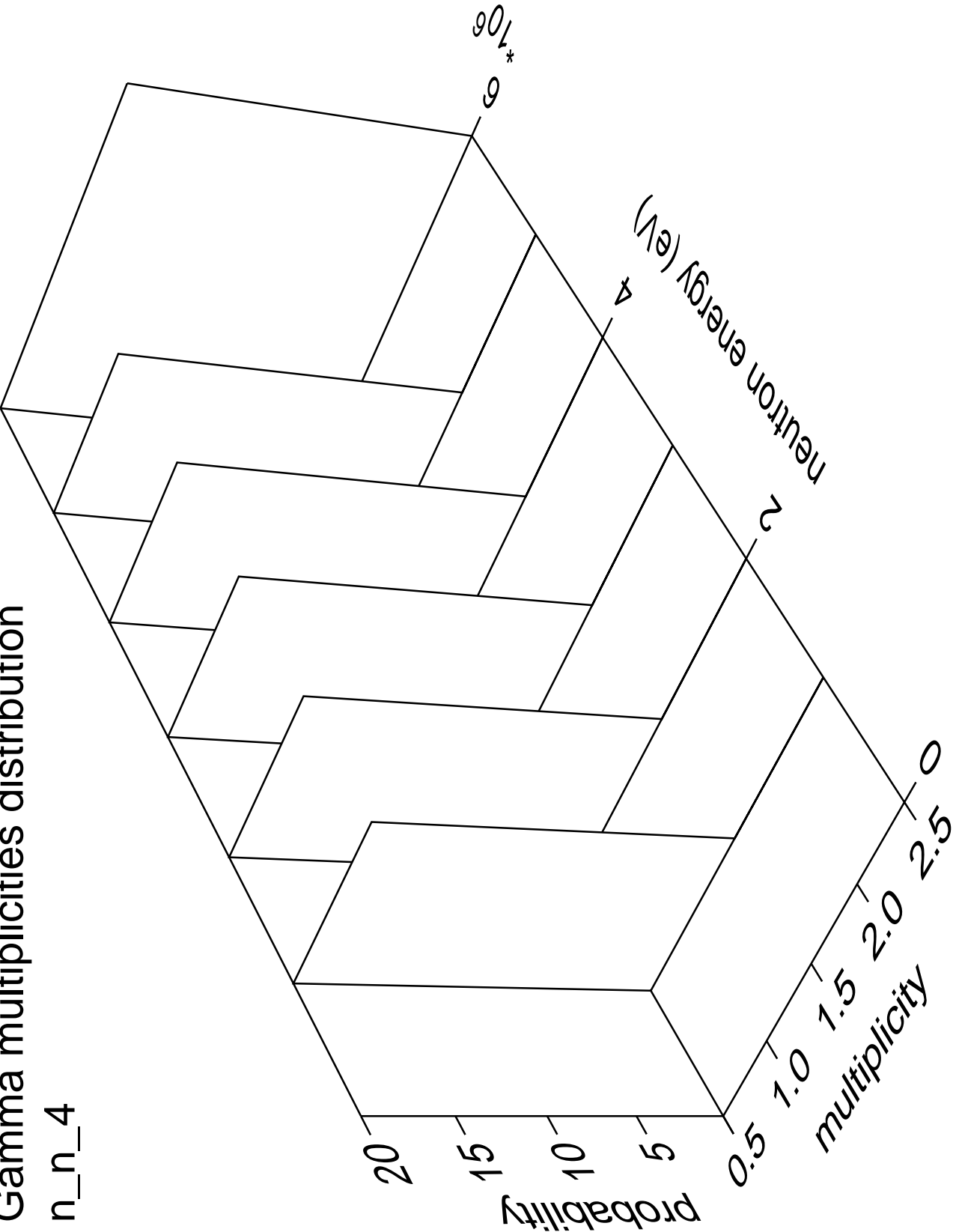
Gamma energy distribution
n_n_5

probability

gamma energy (MeV)

neutron energy (eV)

*10^6
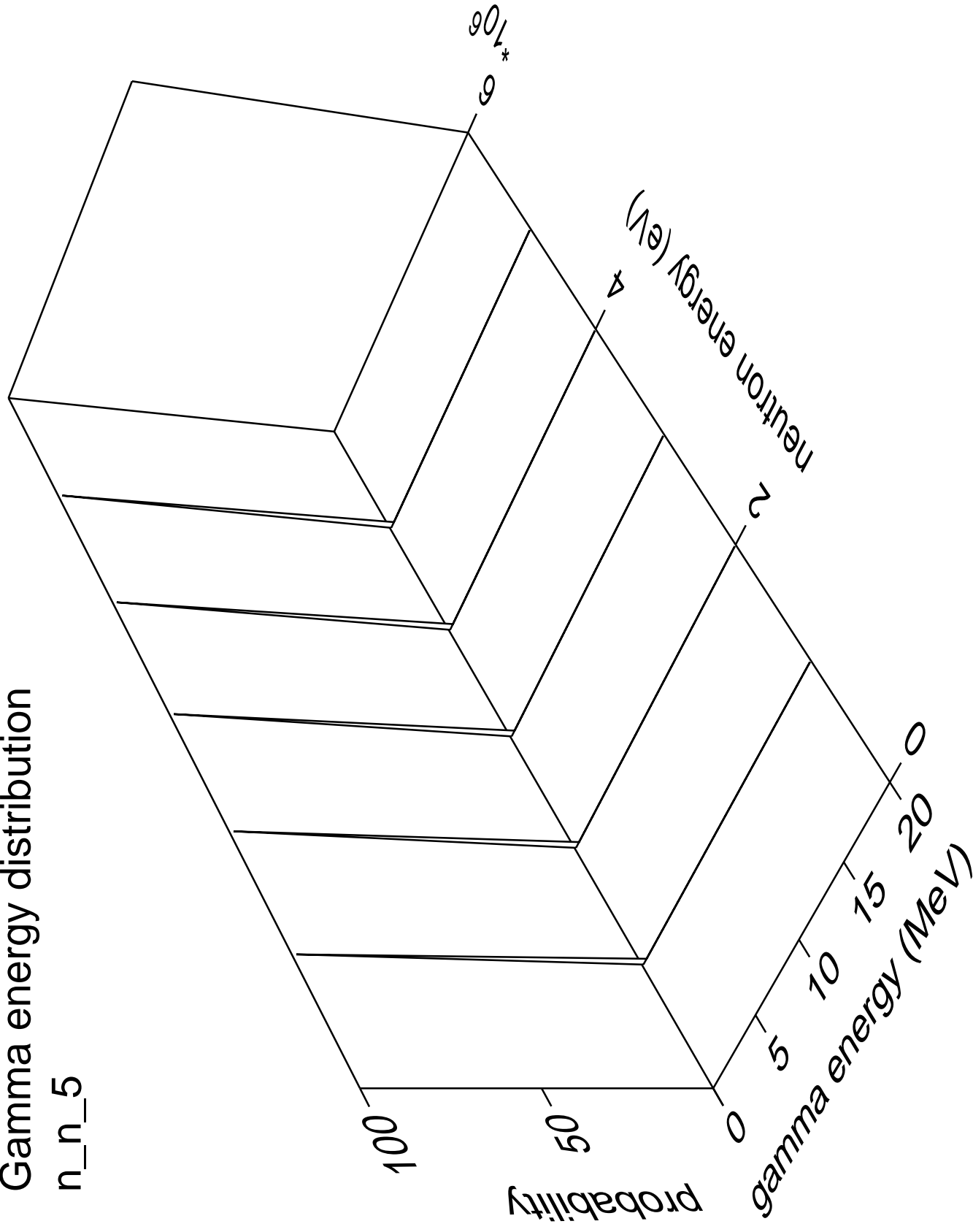
Gamma angles distribution
n_n_5

Gamma multiplicities distribution
n_n_5
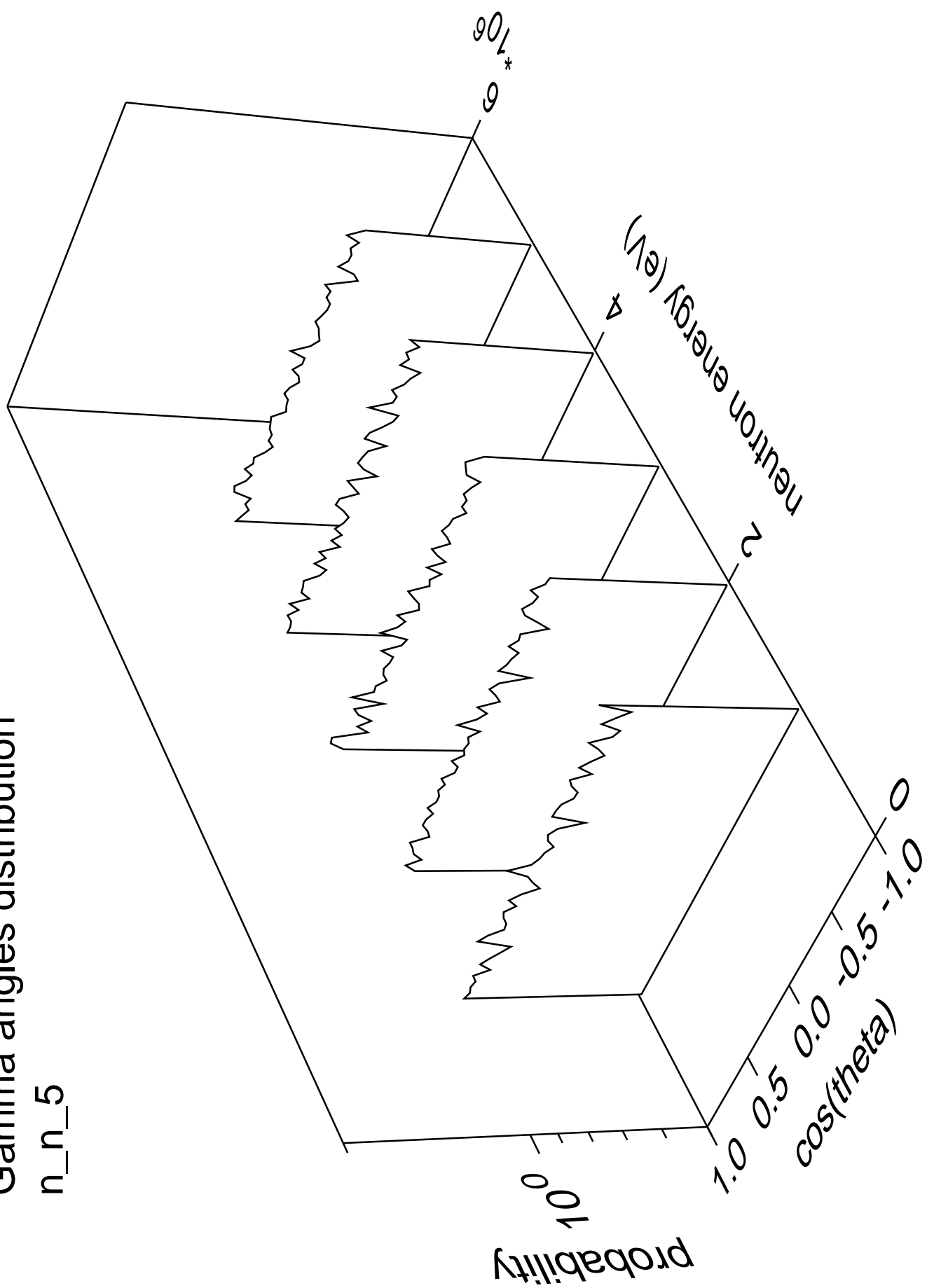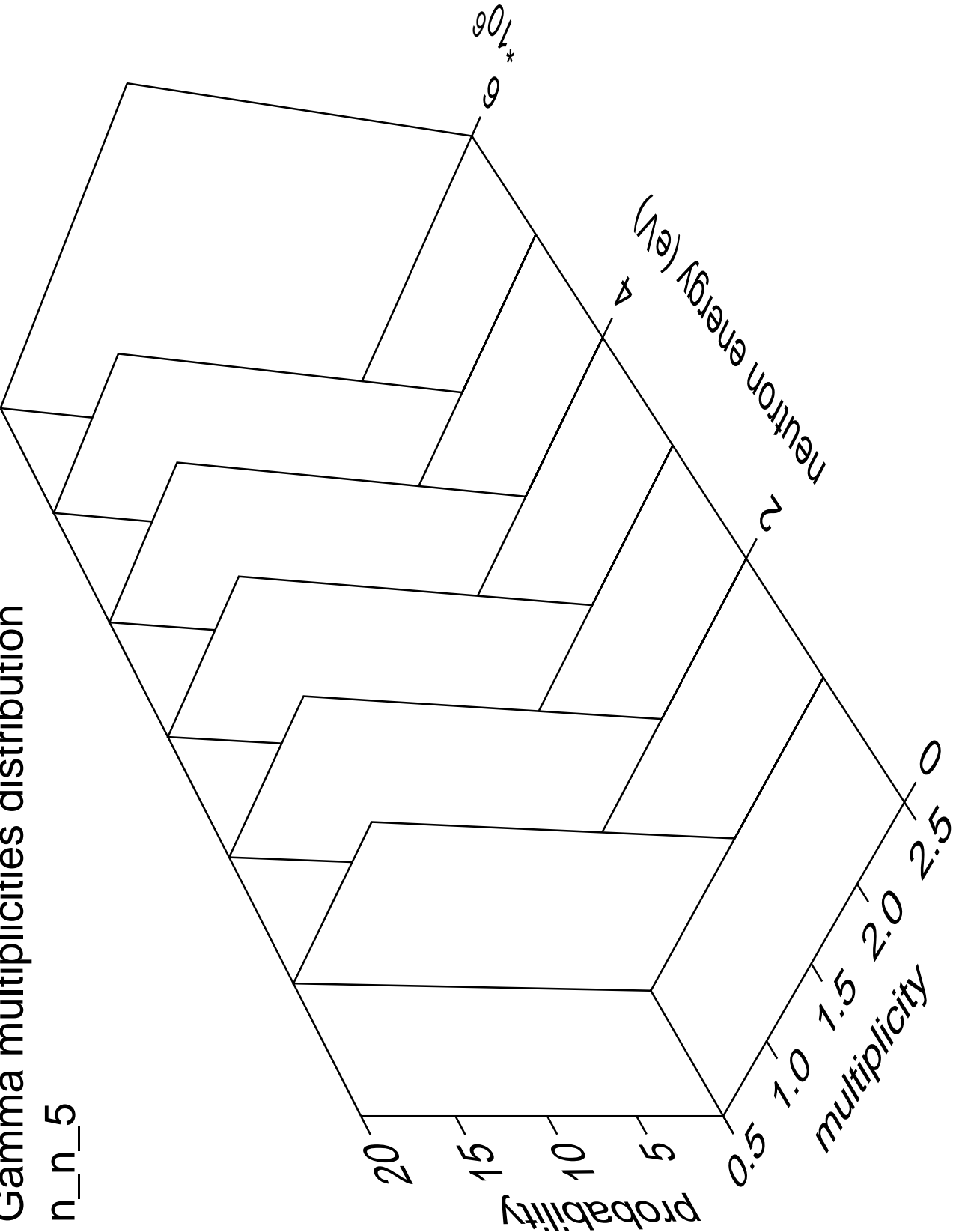
probability

multiplicity

neutron energy (eV)

*10^6

Gamma energy distribution
n_n_6

probability

gamma energy (MeV)

neutron energy (eV)

$6 *10^6$

100
50
0

0   5   10   15   20

0   2   4

Gamma angles distribution
n_n_6

probability

neutron energy (eV)

cos(theta)

9 *10^6
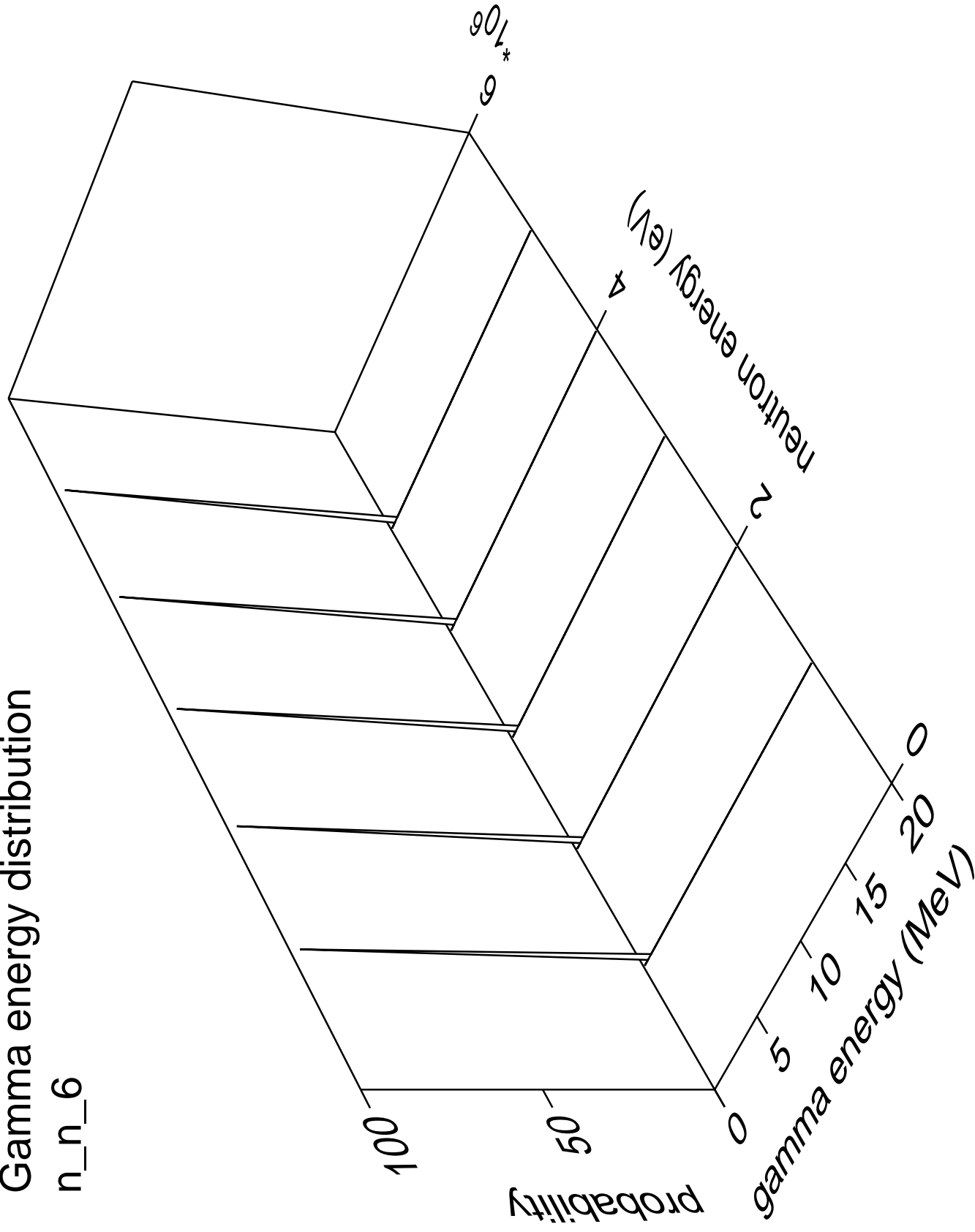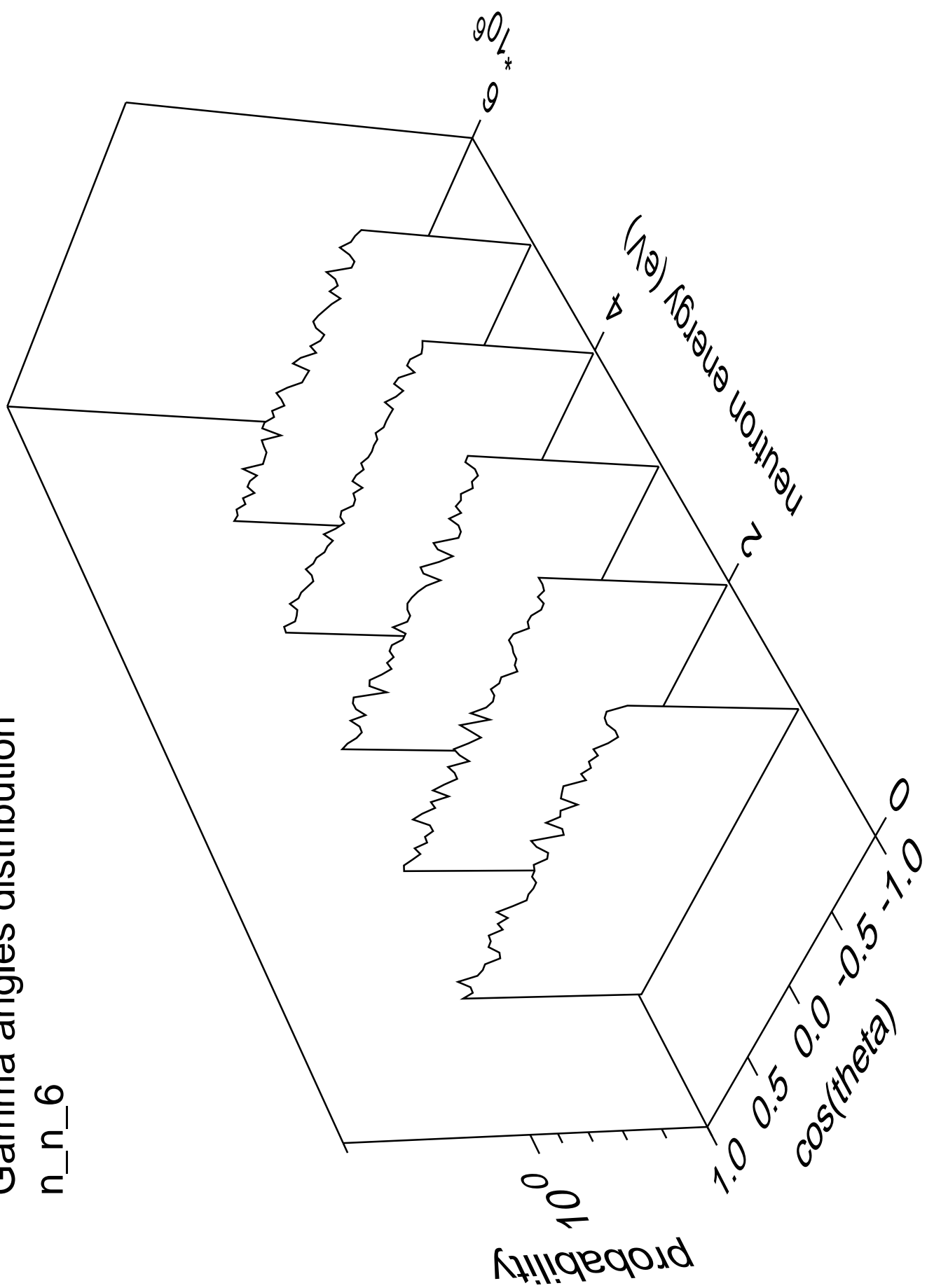
Gamma multiplicities distribution
n_n_6

Gamma energy distribution
n_n_7

neutron energy (eV)

gamma energy (MeV)

probability

6 *10⁶

100

50

0   5   10   15   20

0   2   4

Gamma angles distribution
n_n_7

probability

neutron energy (eV)

cos(theta)
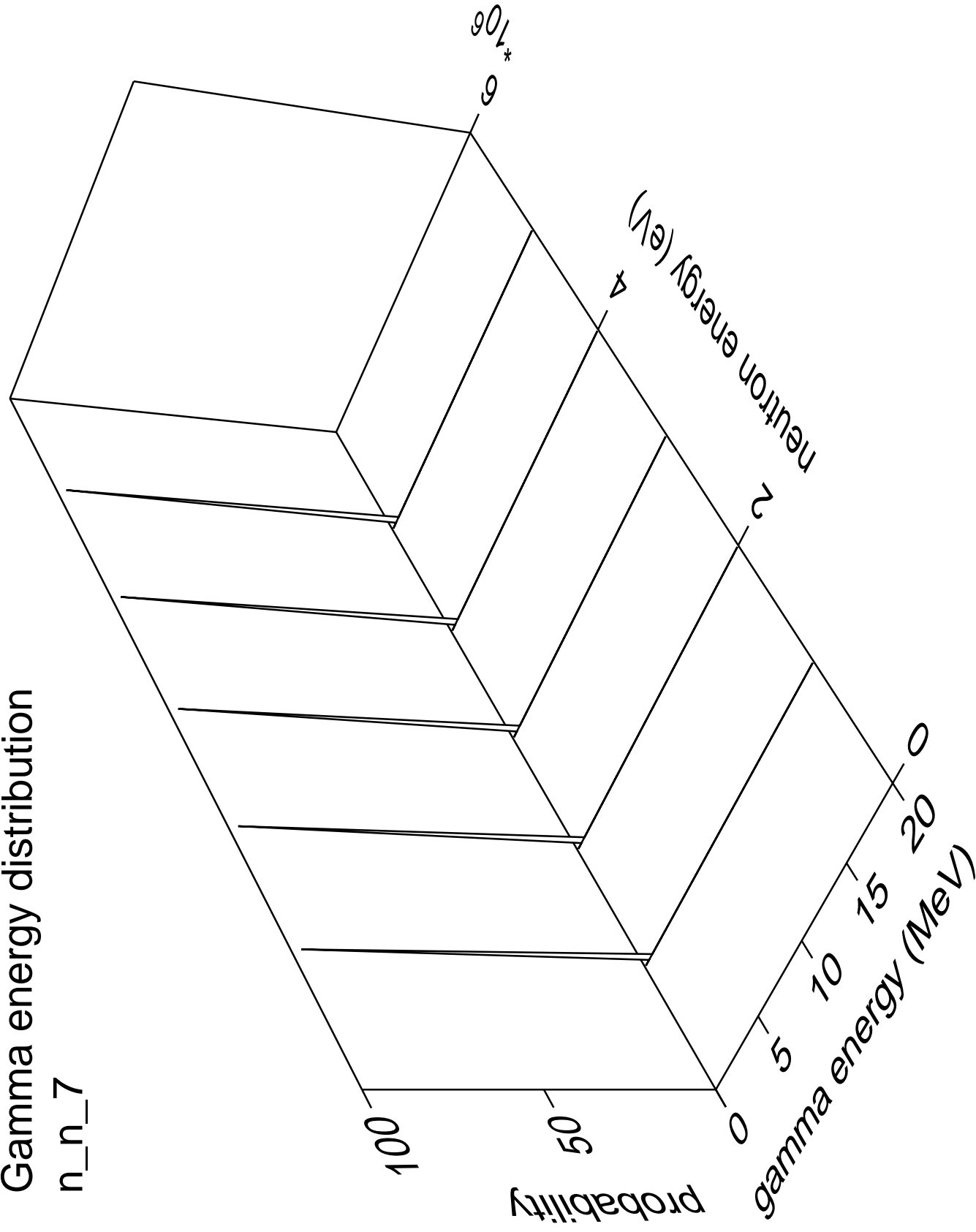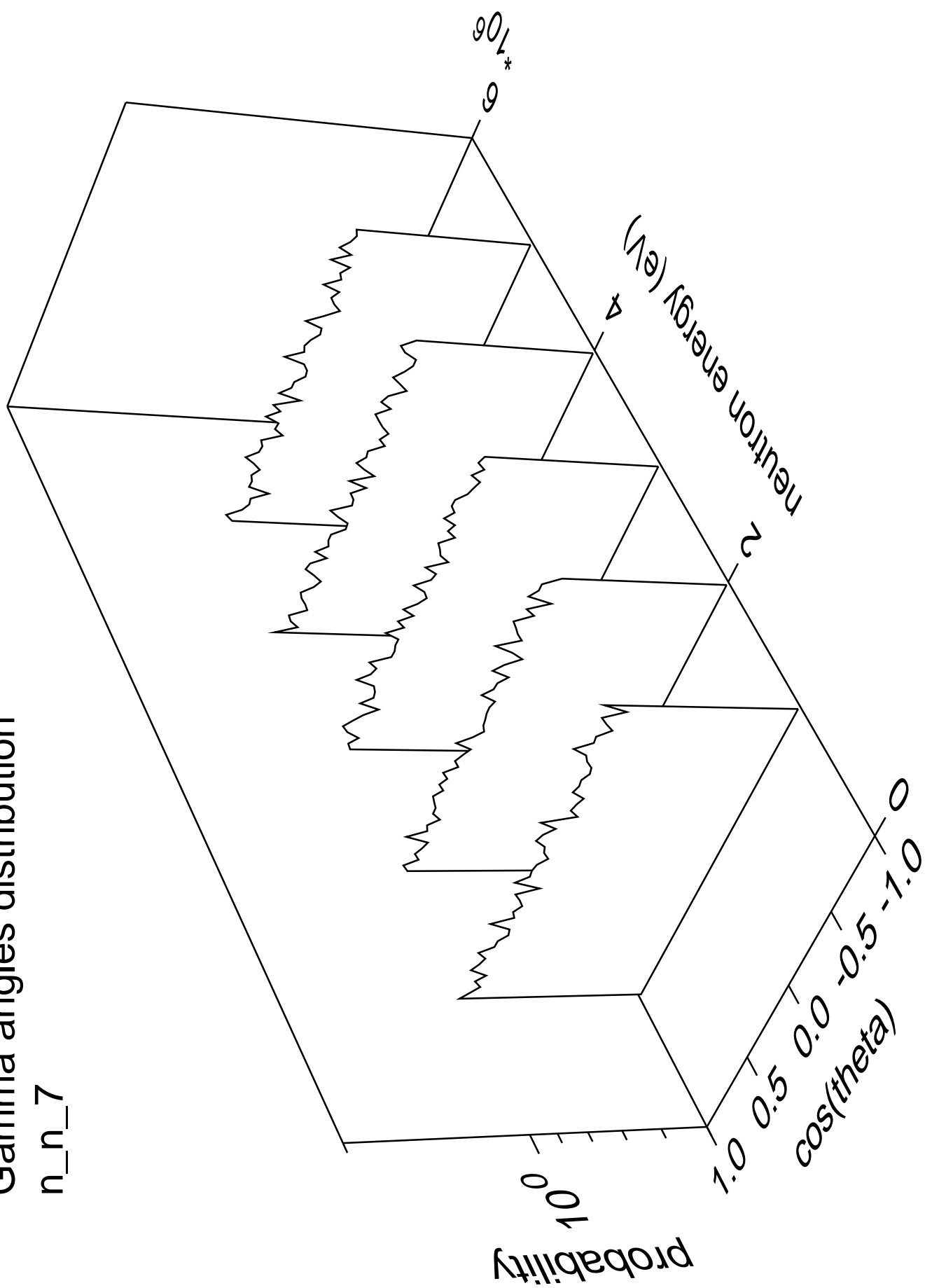
Gamma multiplicities distribution
n_n_7

Gamma energy distribution
n_n_8
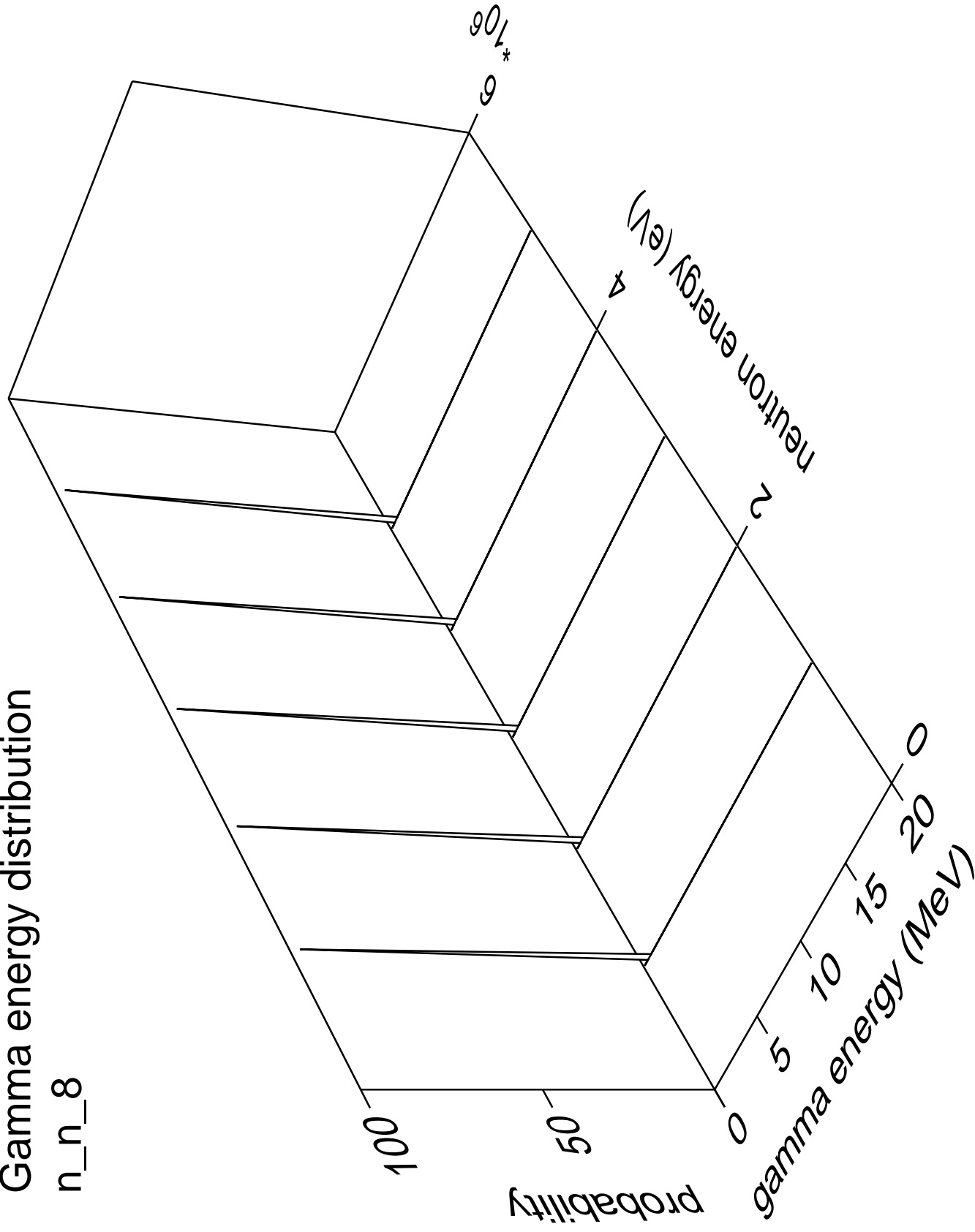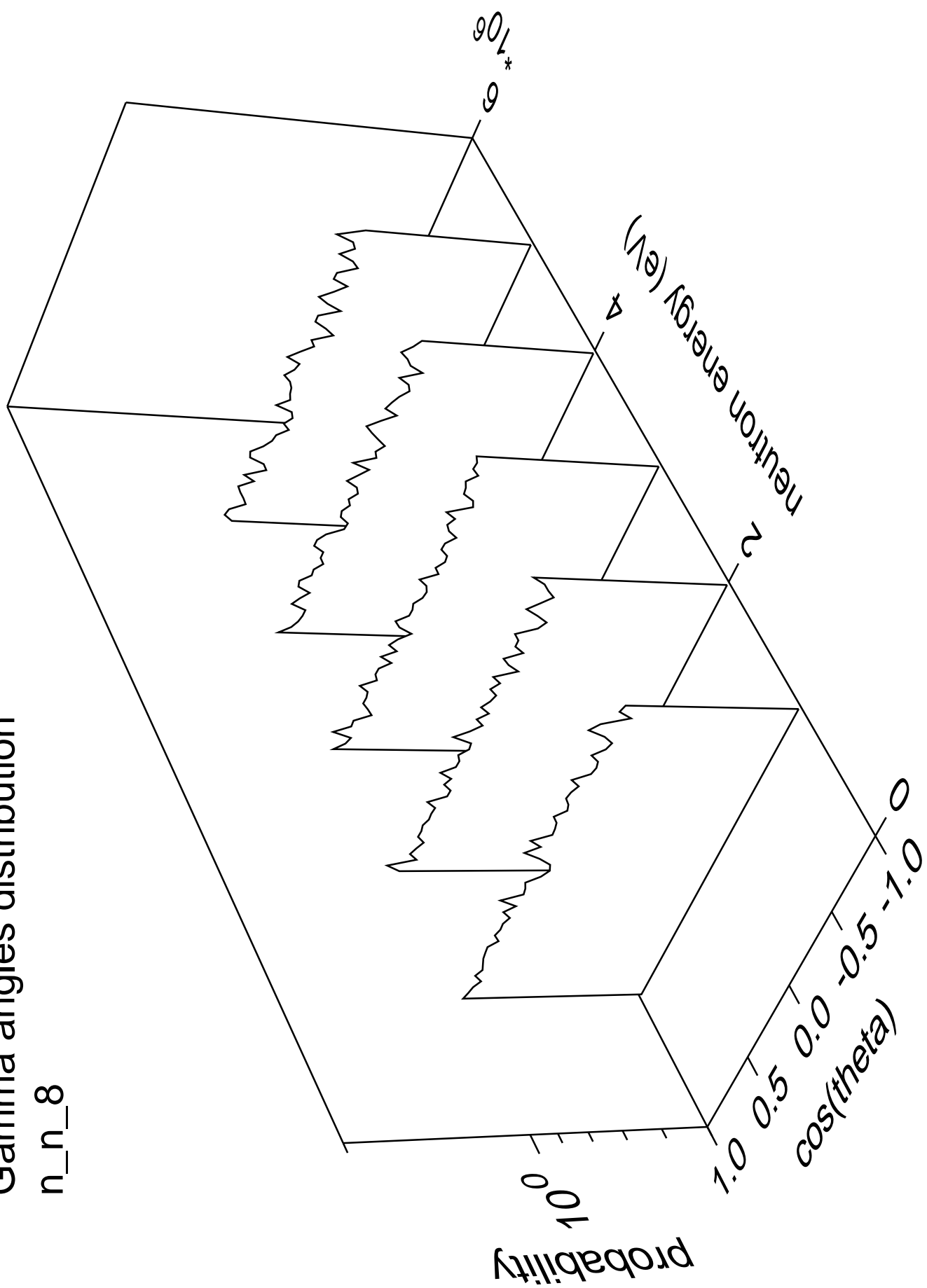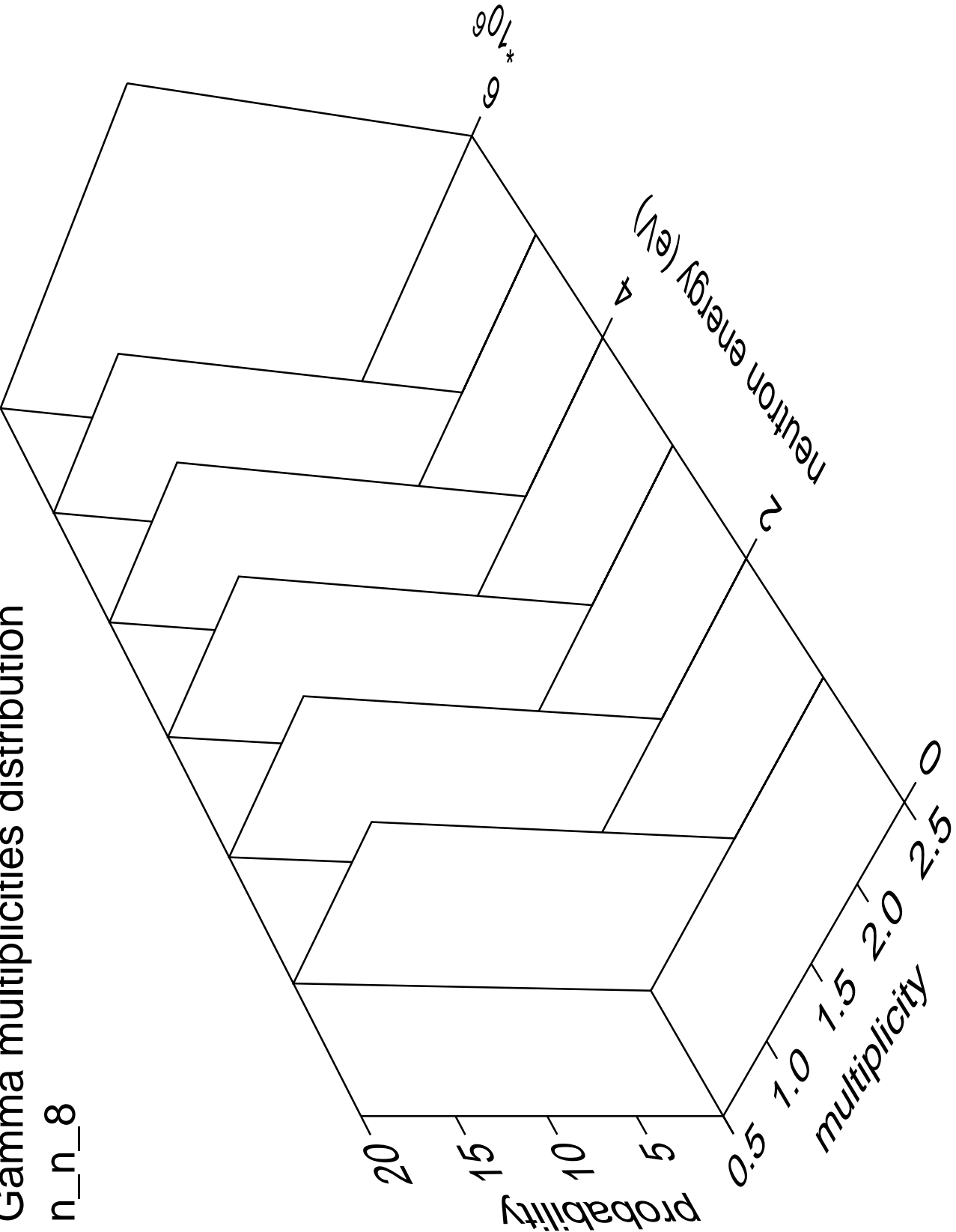
neutron energy (eV)

gamma energy (MeV)

probability

$9*10^6$

4

2

0

20

15

10

5

0

100

50

Gamma angles distribution
n_n_8

probability

neutron energy (eV)

cos(theta)

Gamma multiplicities distribution n_n_8

probability

multiplicity

neutron energy (eV)

Gamma energy distribution
n_n_9

probability

neutron energy (eV)

gamma energy (MeV)

6 *10⁶

4

2

0

5   10   15   20

0

100

50

0

Gamma angles distribution
n_n_9

probability

neutron energy (eV)

cos(theta)

6 *10⁶

4

2

0

1.0  0.5  0.0  -0.5  -1.0

10⁰

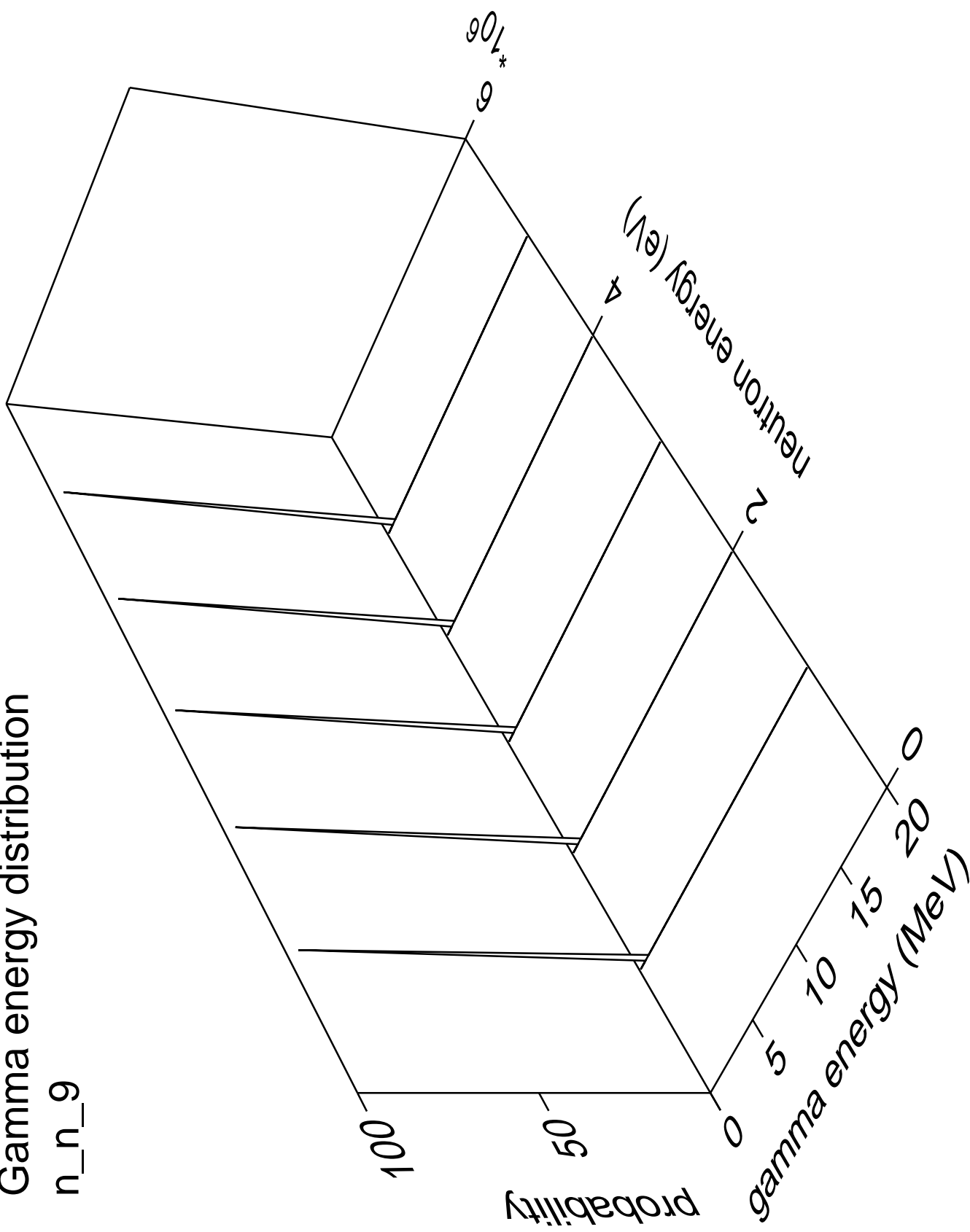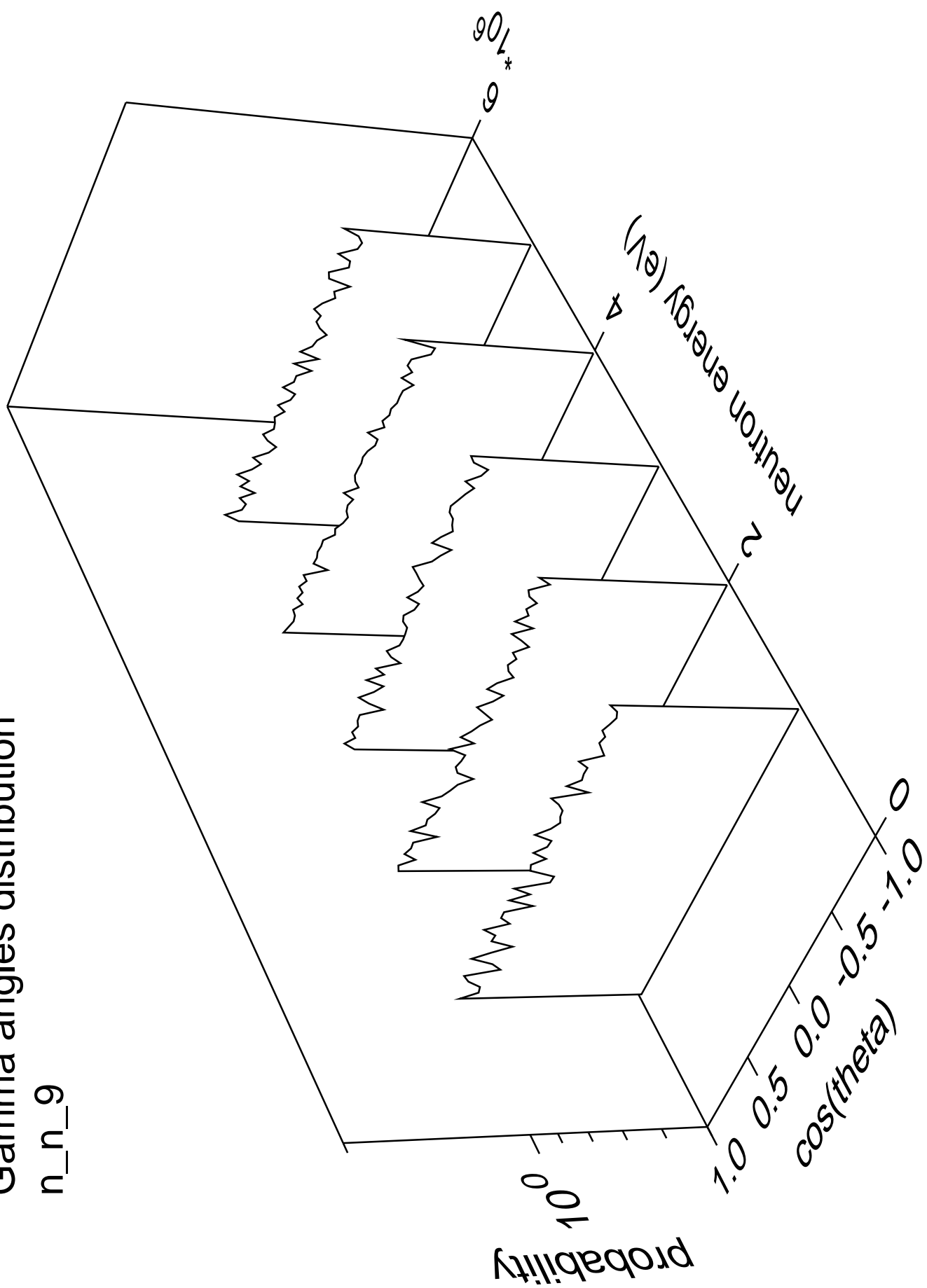Gamma multiplicities distribution
n_n_9

Gamma energy distribution
n_n_10

probability

100
50

0   5   10   15   20
gamma energy (MeV)

2   4
neutron energy (eV)

9
*10⁶

Gamma angles distribution
n_n_10

neutron energy (eV)

cos(theta)

probability

9 *10⁶
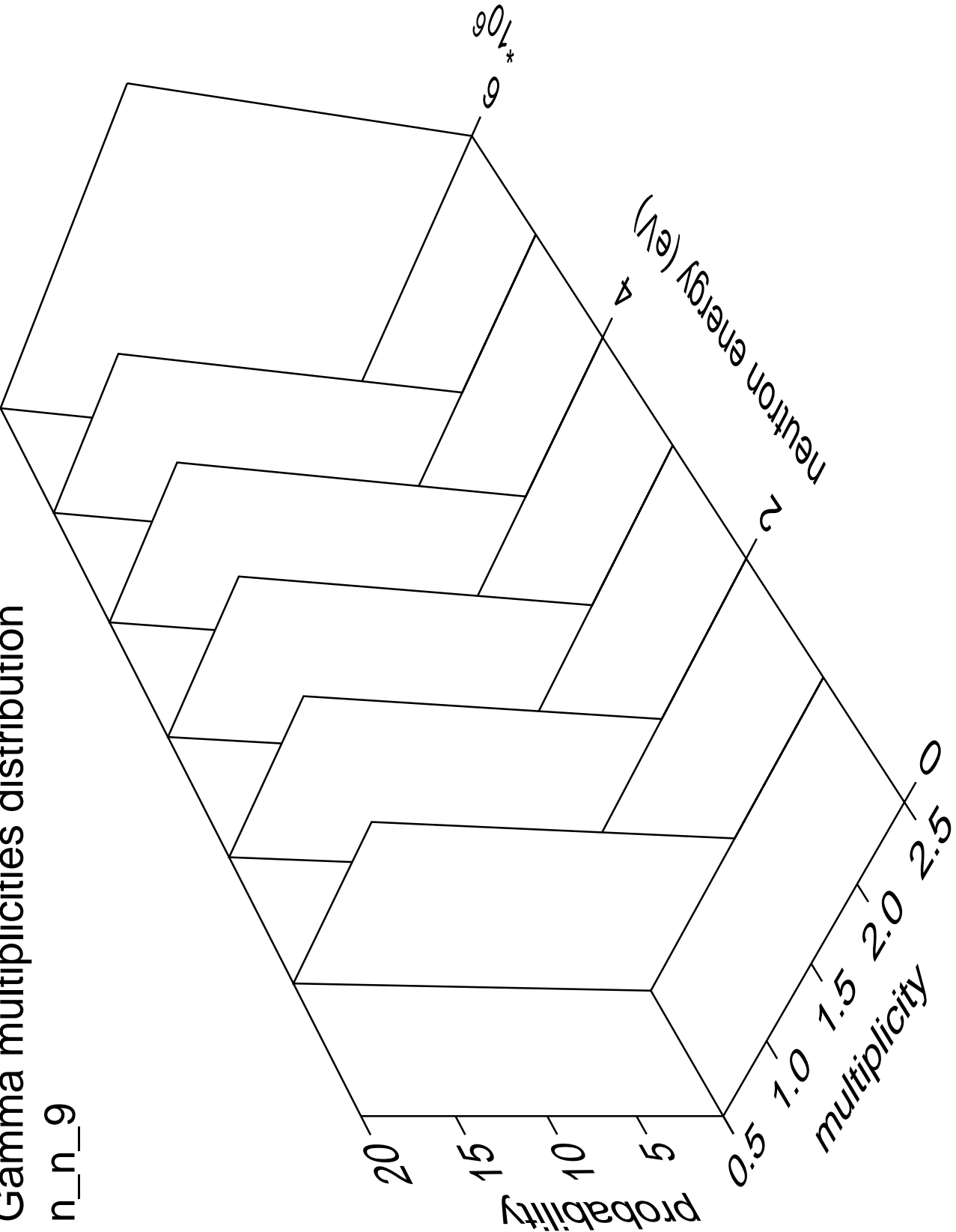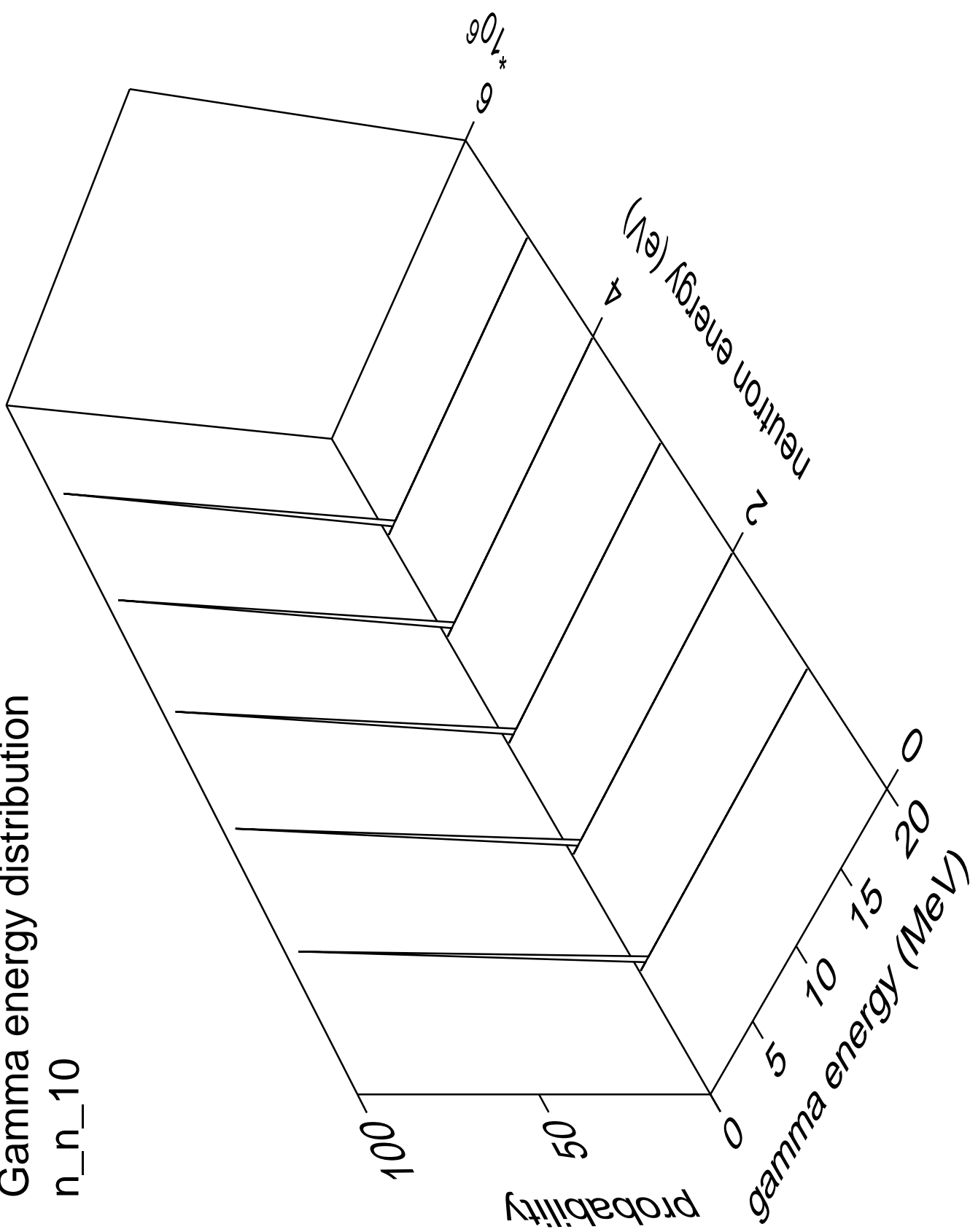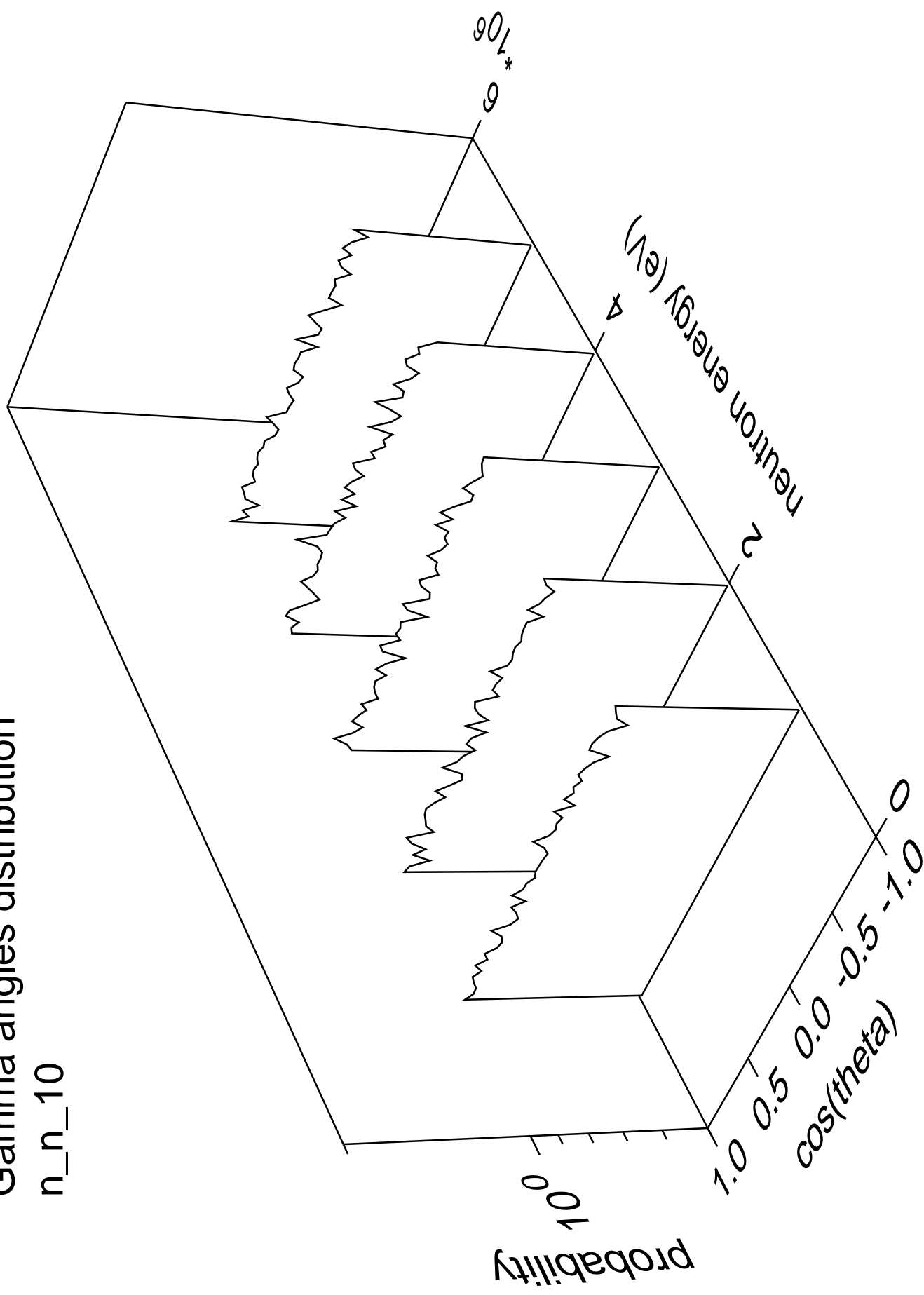
Gamma multiplicities distribution
n_n_10

Gamma energy distribution
n_n_11

probability

100

50

0

gamma energy (MeV)

0    5    10    15    20

neutron energy (eV)

2    3    4    5

*10⁶

Gamma angles distribution
n_n_11

probability

neutron energy (eV)

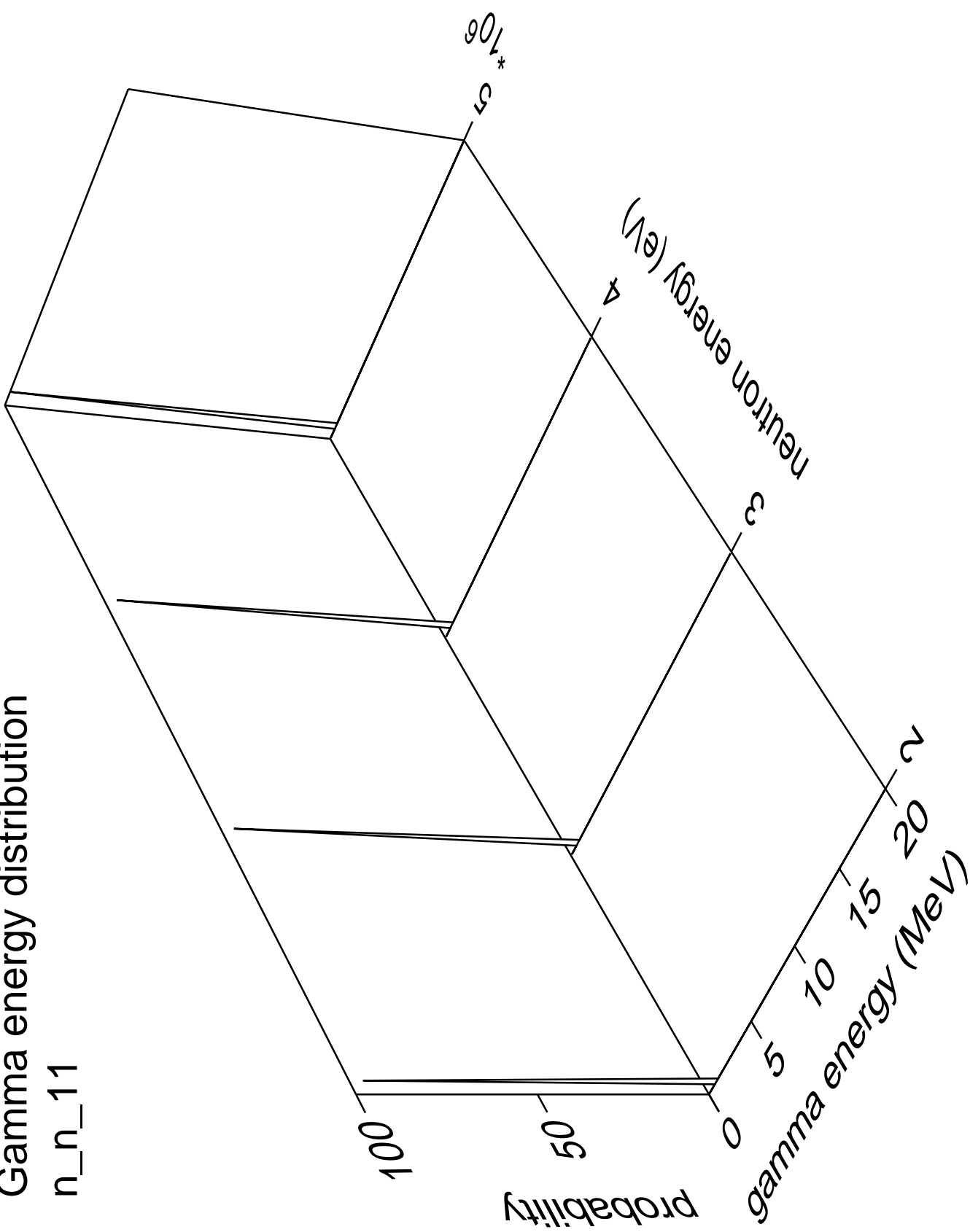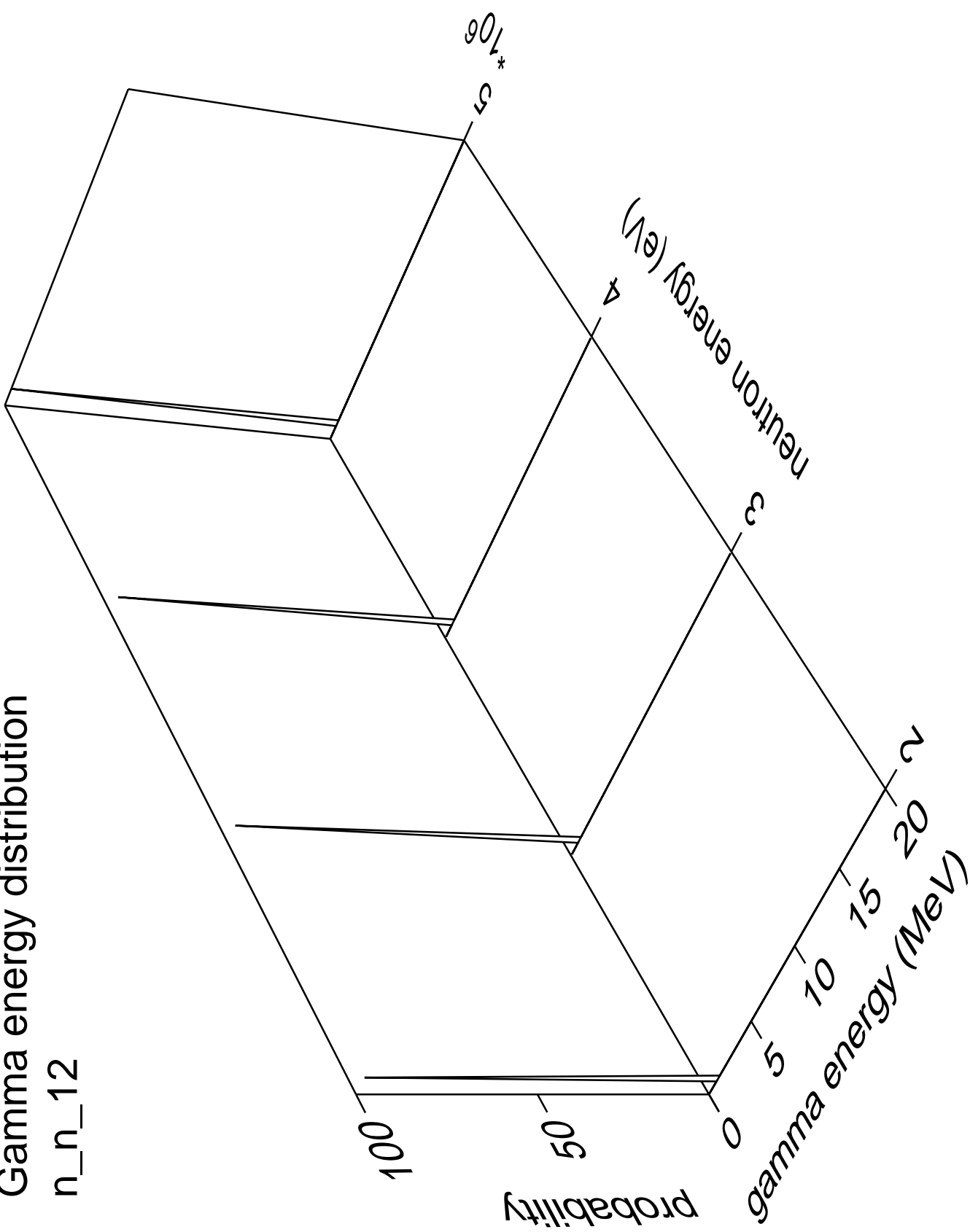cos(theta)

5 *10⁶

4

3

2

1.0  0.5  0.0  -0.5 -1.0

10⁰
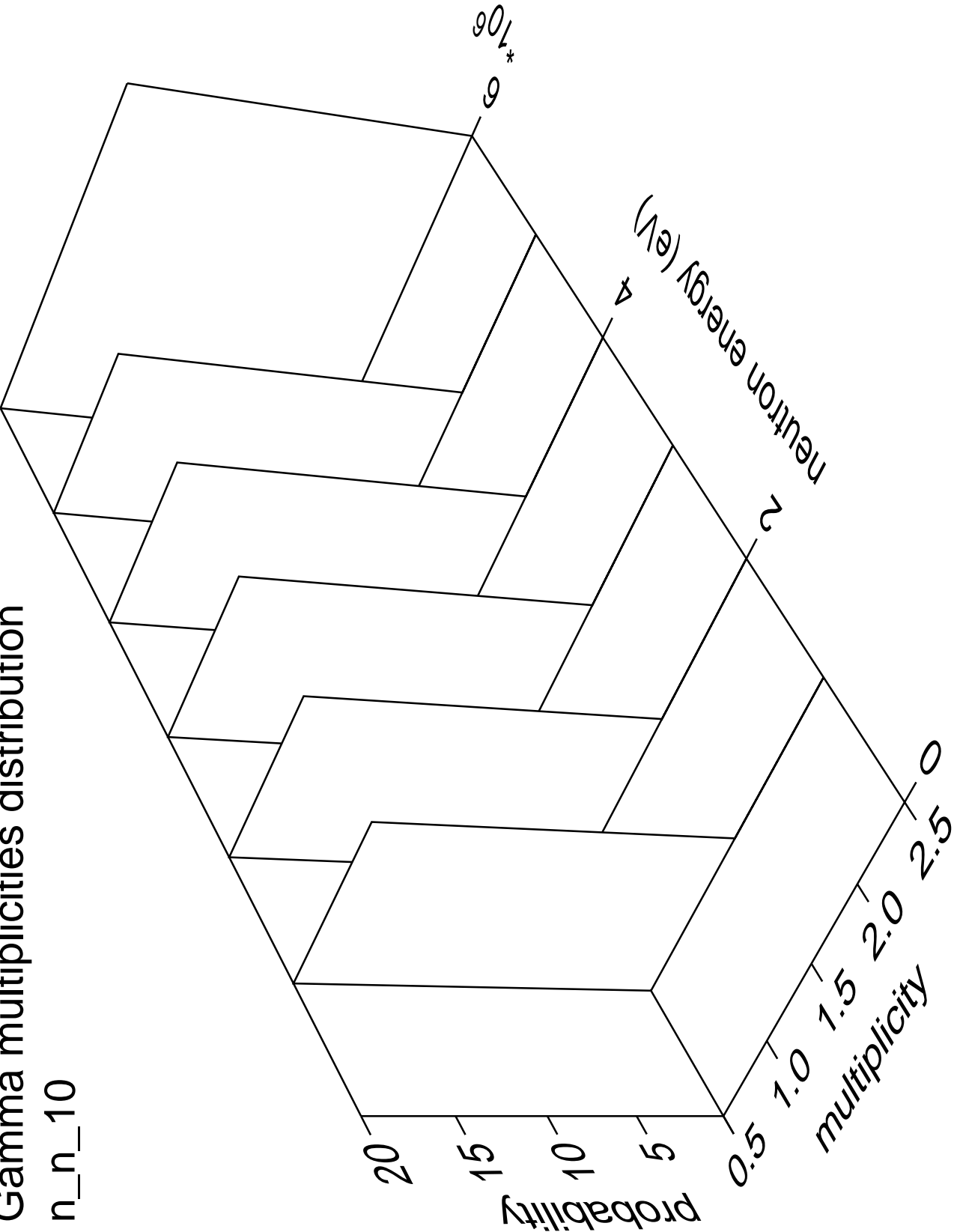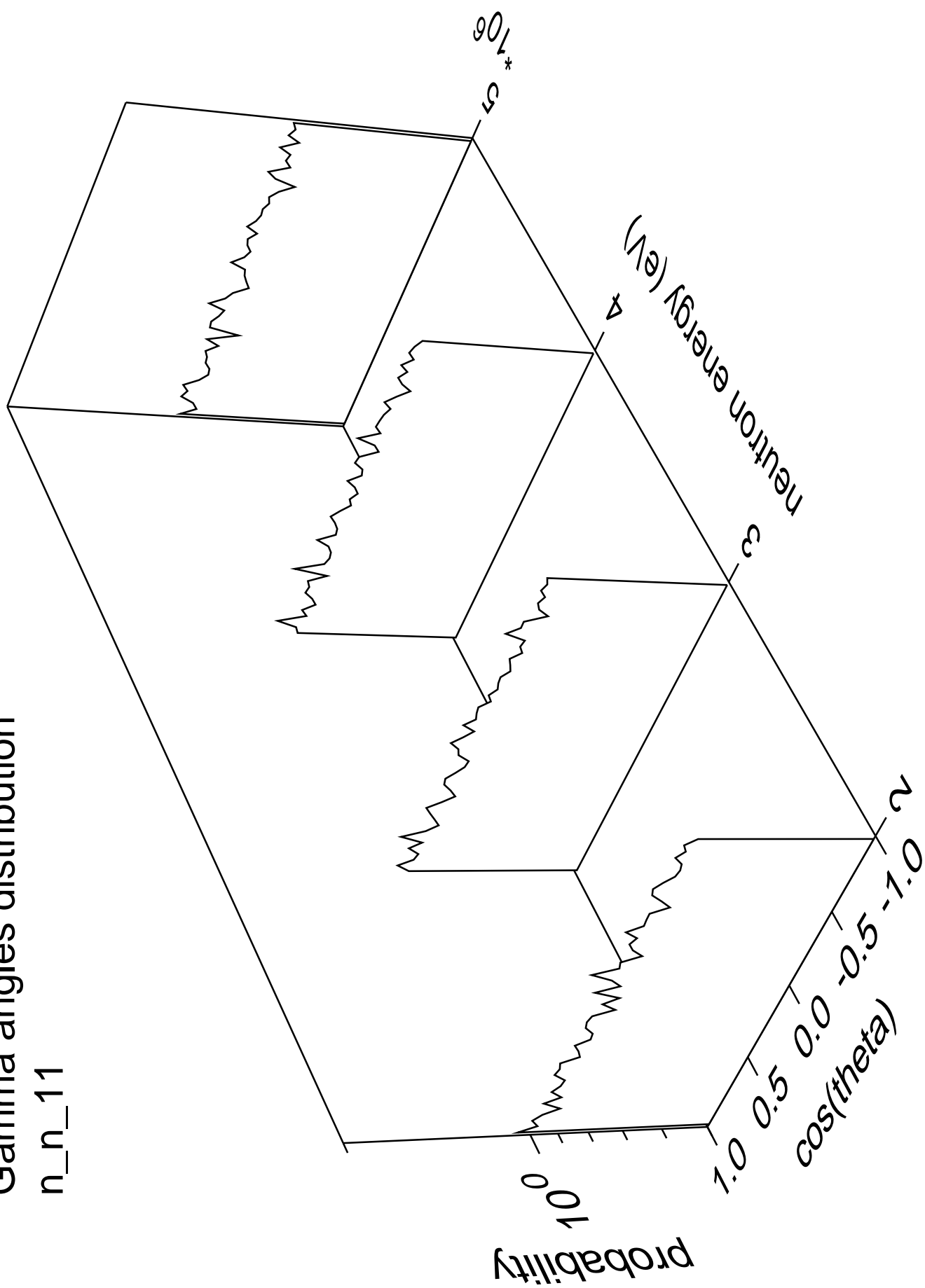
Gamma multiplicities distribution
n_n_11
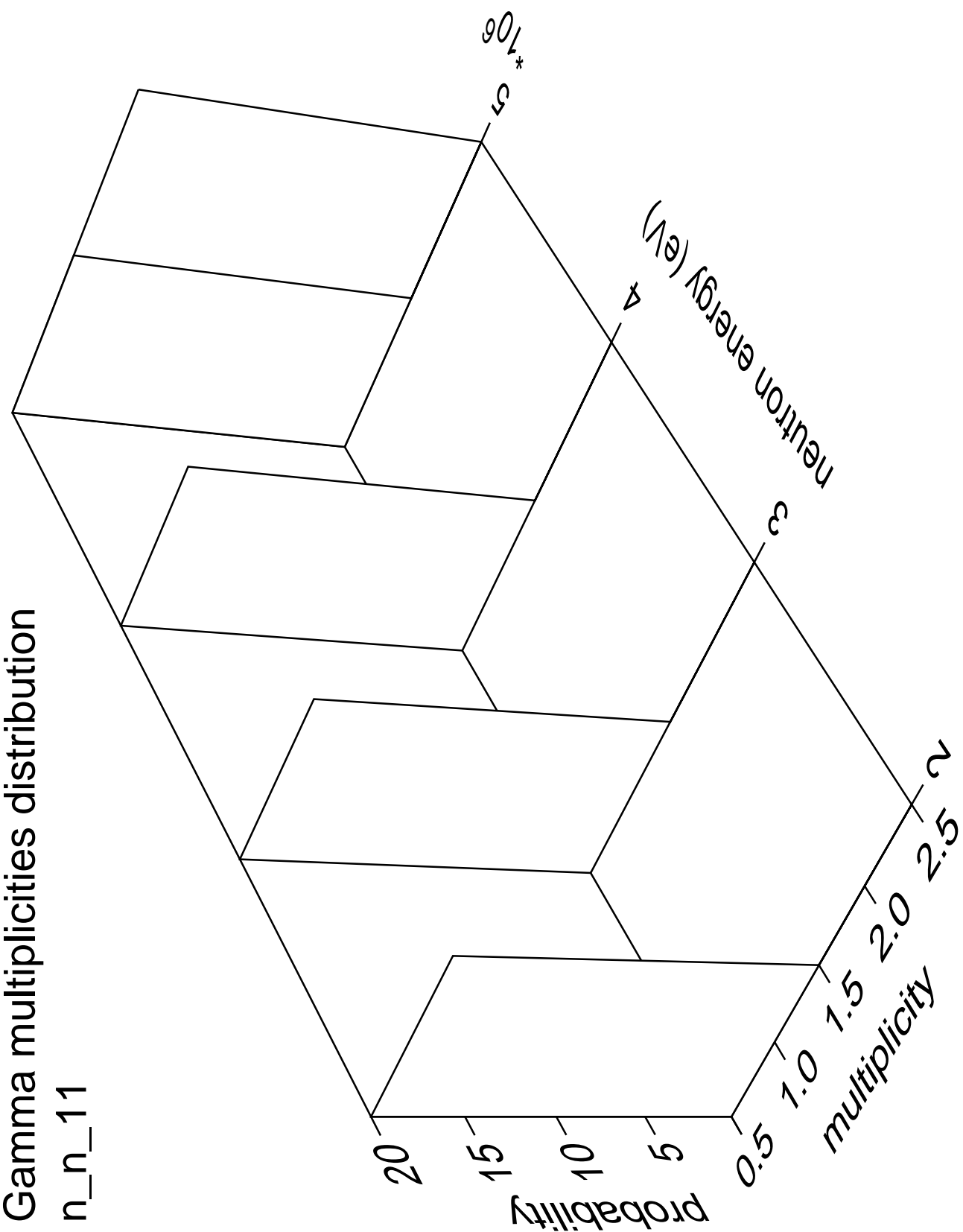
Gamma energy distribution
n_n_12

Gamma angles distribution
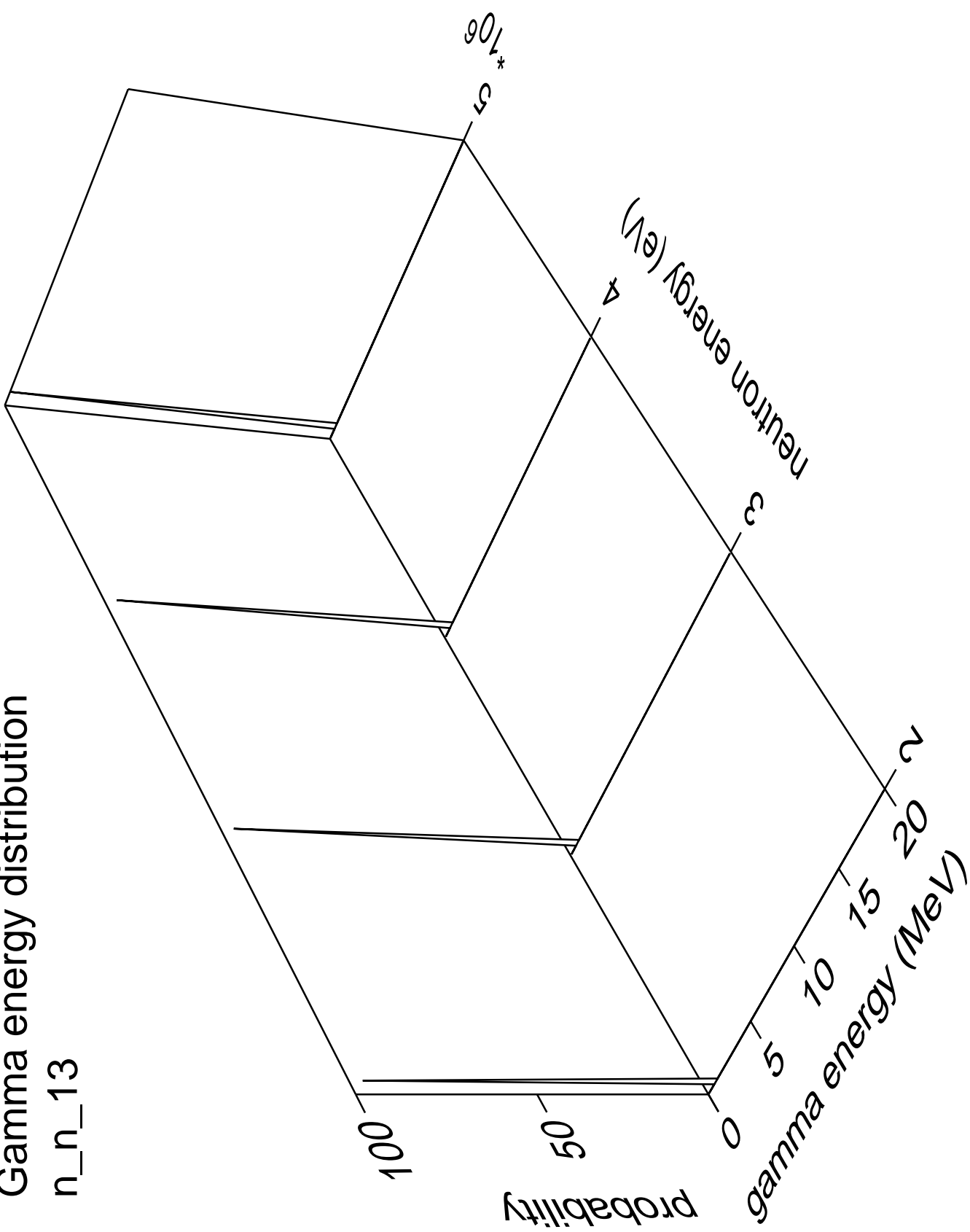n_n_12

probability

neutron energy (eV)

cos(theta)

5 *10⁶

1.0 0.5 0.0 -0.5 -1.0
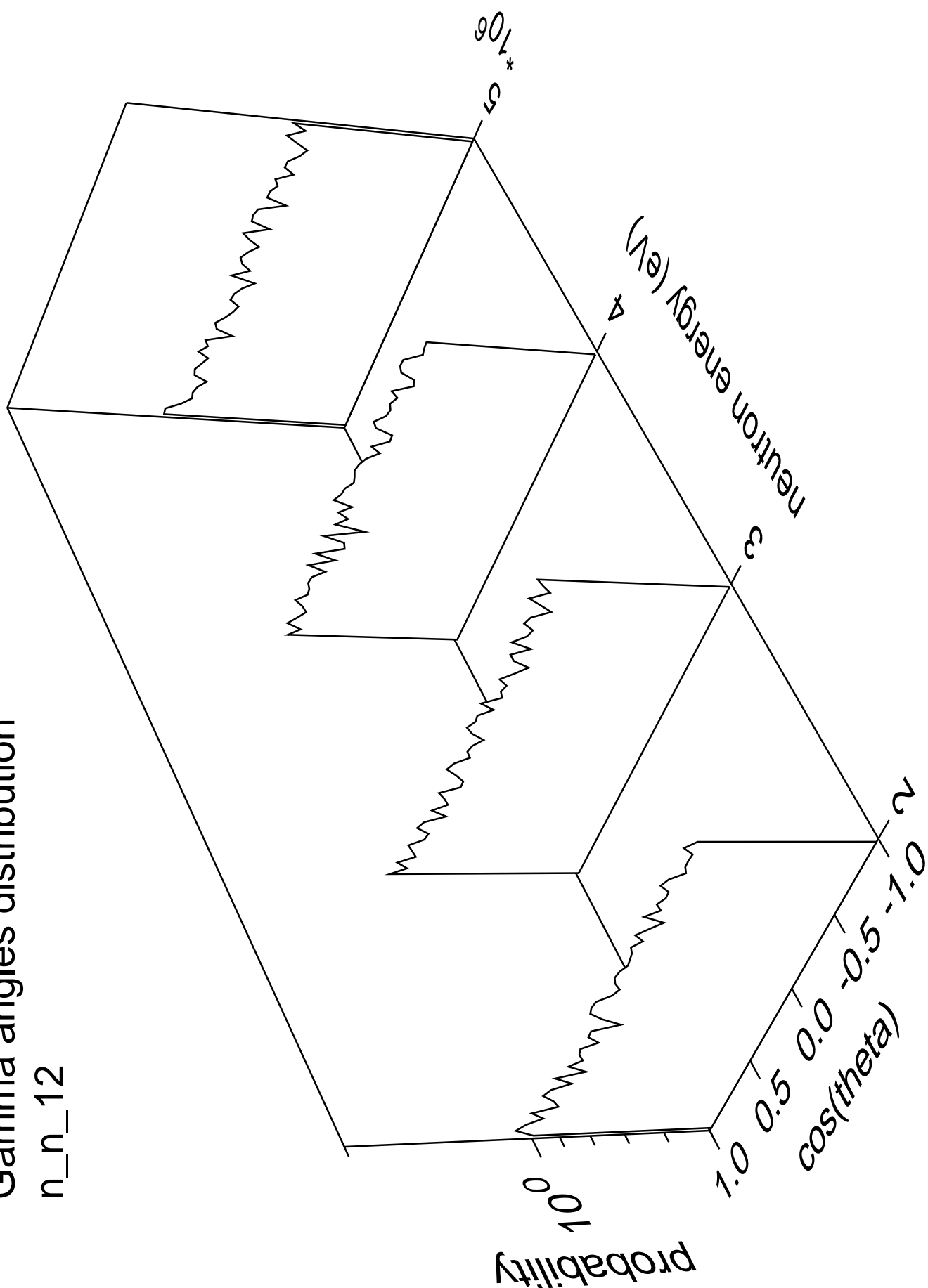
Gamma multiplicities distribution n_n_12

Gamma energy distribution
n_n_13

probability

gamma energy (MeV)

neutron energy (eV)

Gamma angles distribution
n_n_13

probability

cos(theta)

neutron energy (eV)
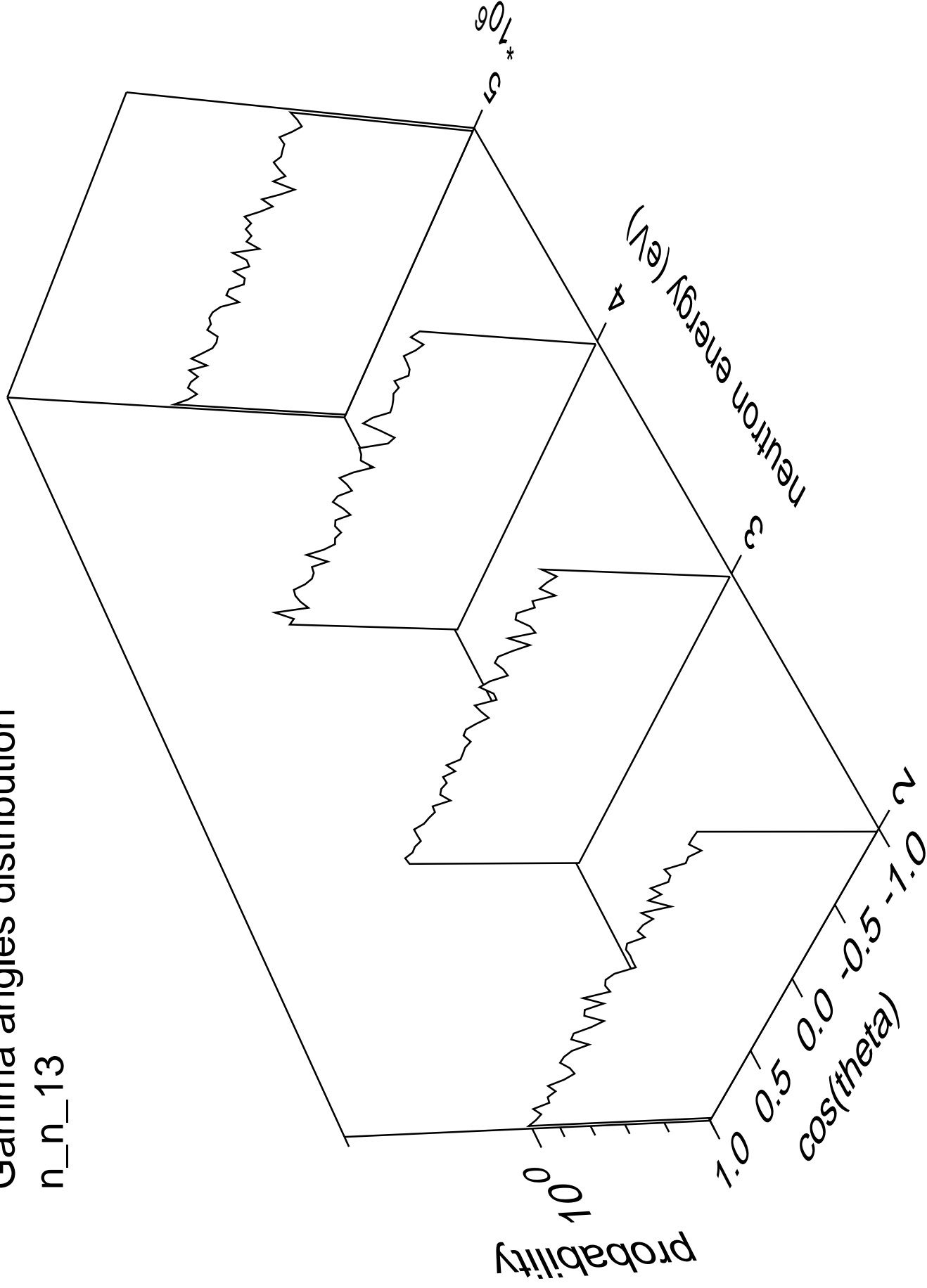
Gamma multiplicities distribution
n_n_13

Gamma energy distribution
n_n_14

probability

100

50

0   5   10   15   20
gamma energy (MeV)

2   3   4   5
*10⁶
neutron energy (eV)

Gamma angles distribution
n_n_14

probability

neutron energy (eV)

cos(theta)

1.0  0.5  0.0  -0.5  -1.0

2       3       4       5

*10⁶
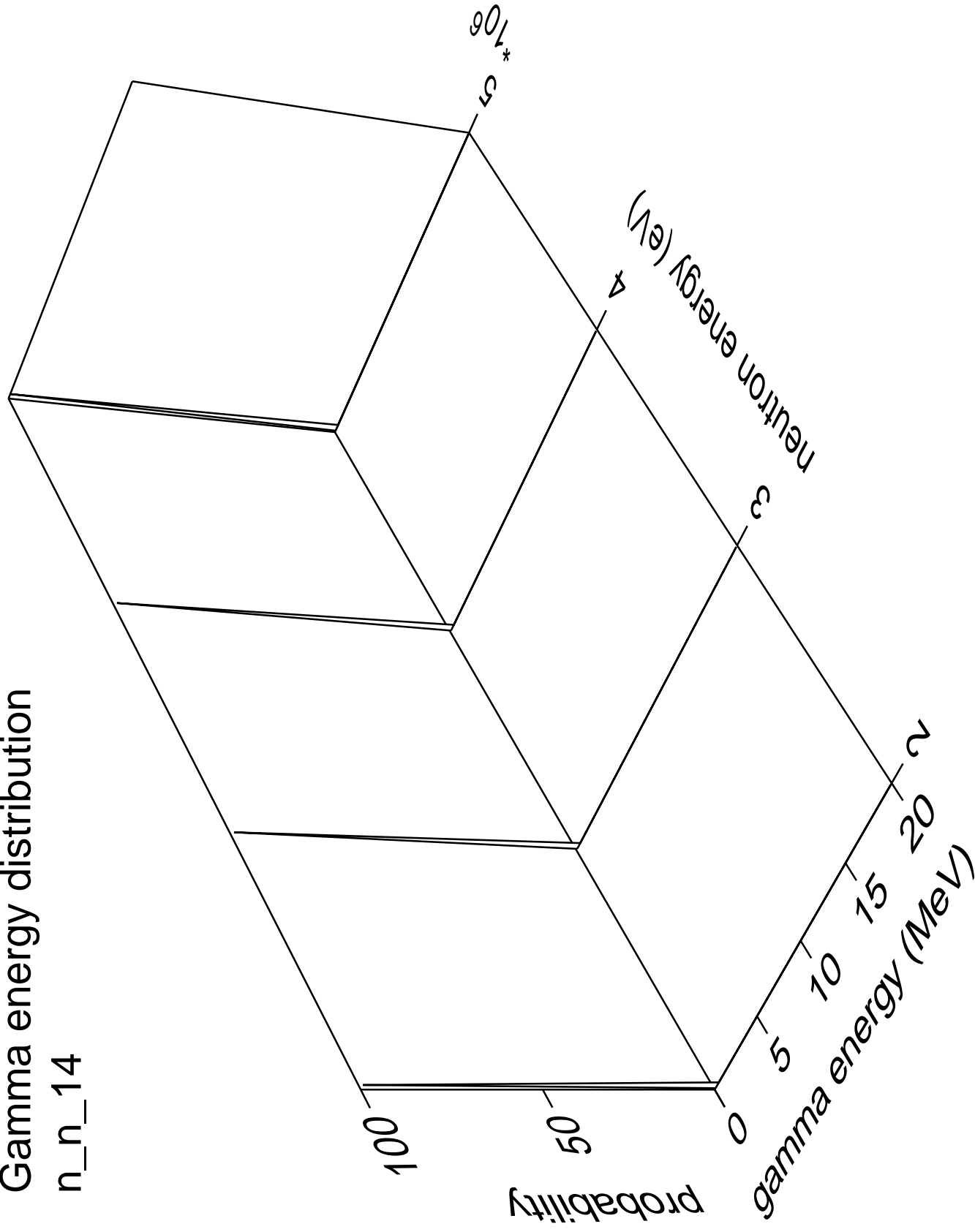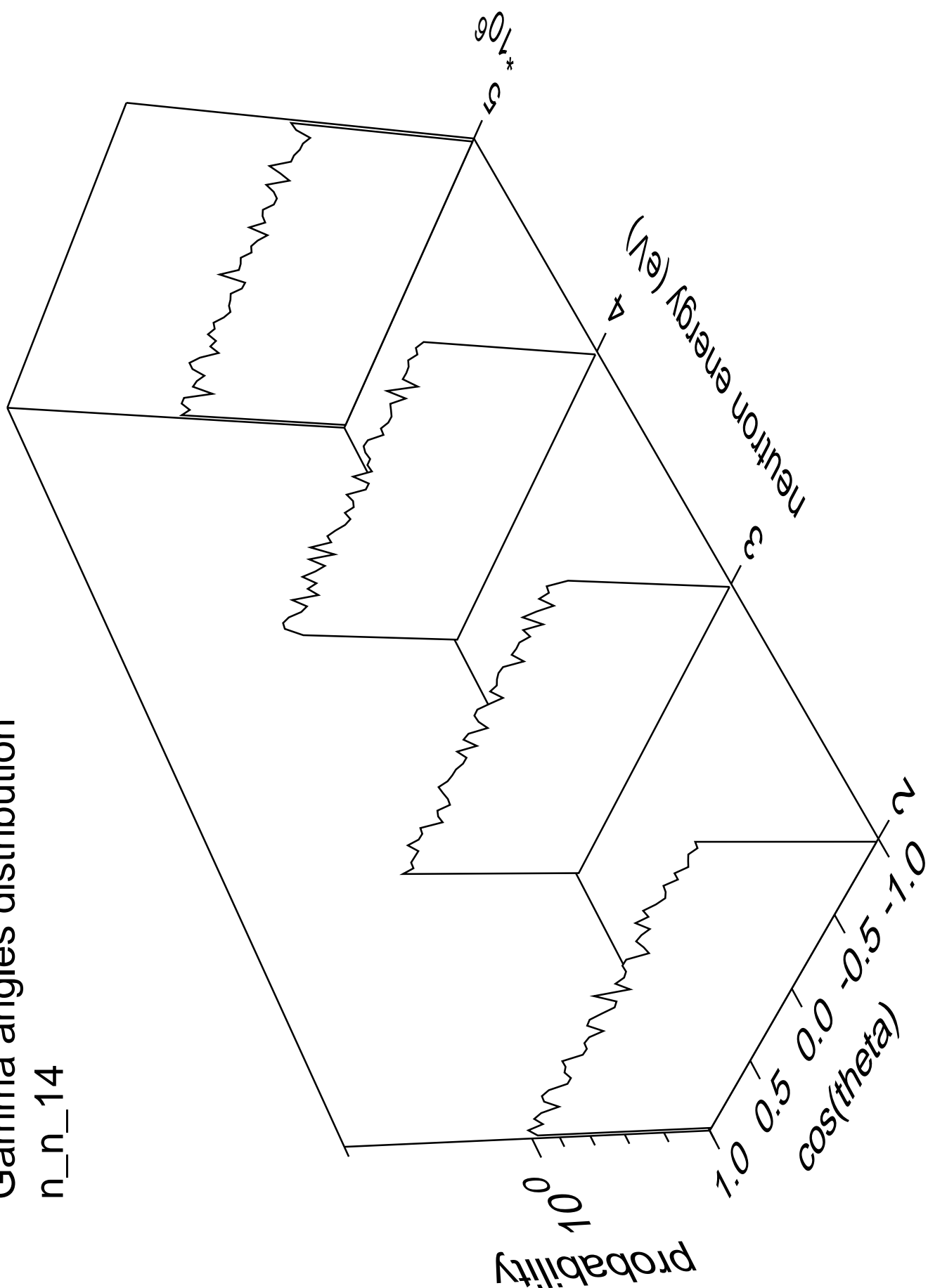
Gamma multiplicities distribution
n_n_14

Gamma energy distribution
n_n_15

neutron energy (eV)

gamma energy (MeV)

probability

0    5    10    15    20
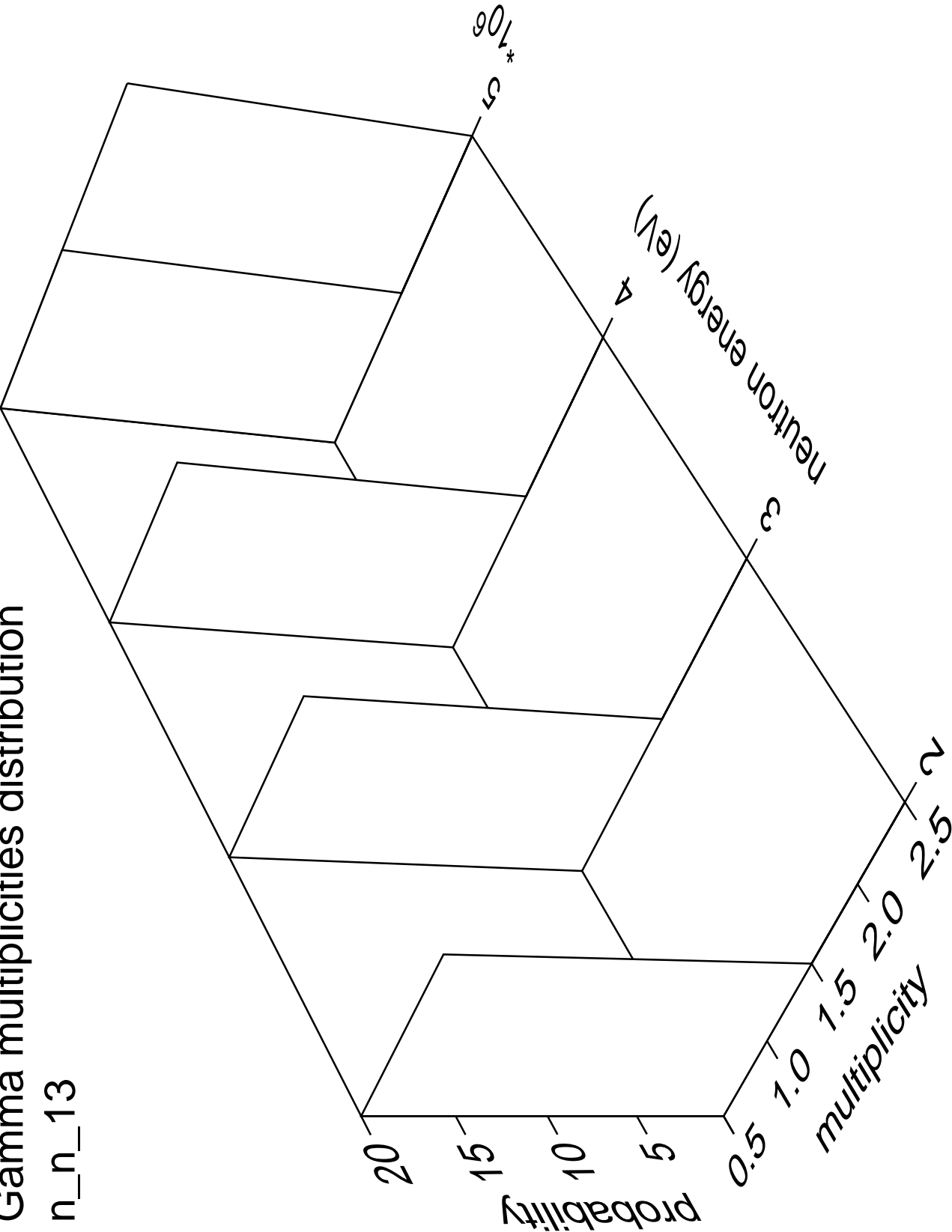
2    3    4    5

*10⁶

20    40    60    80
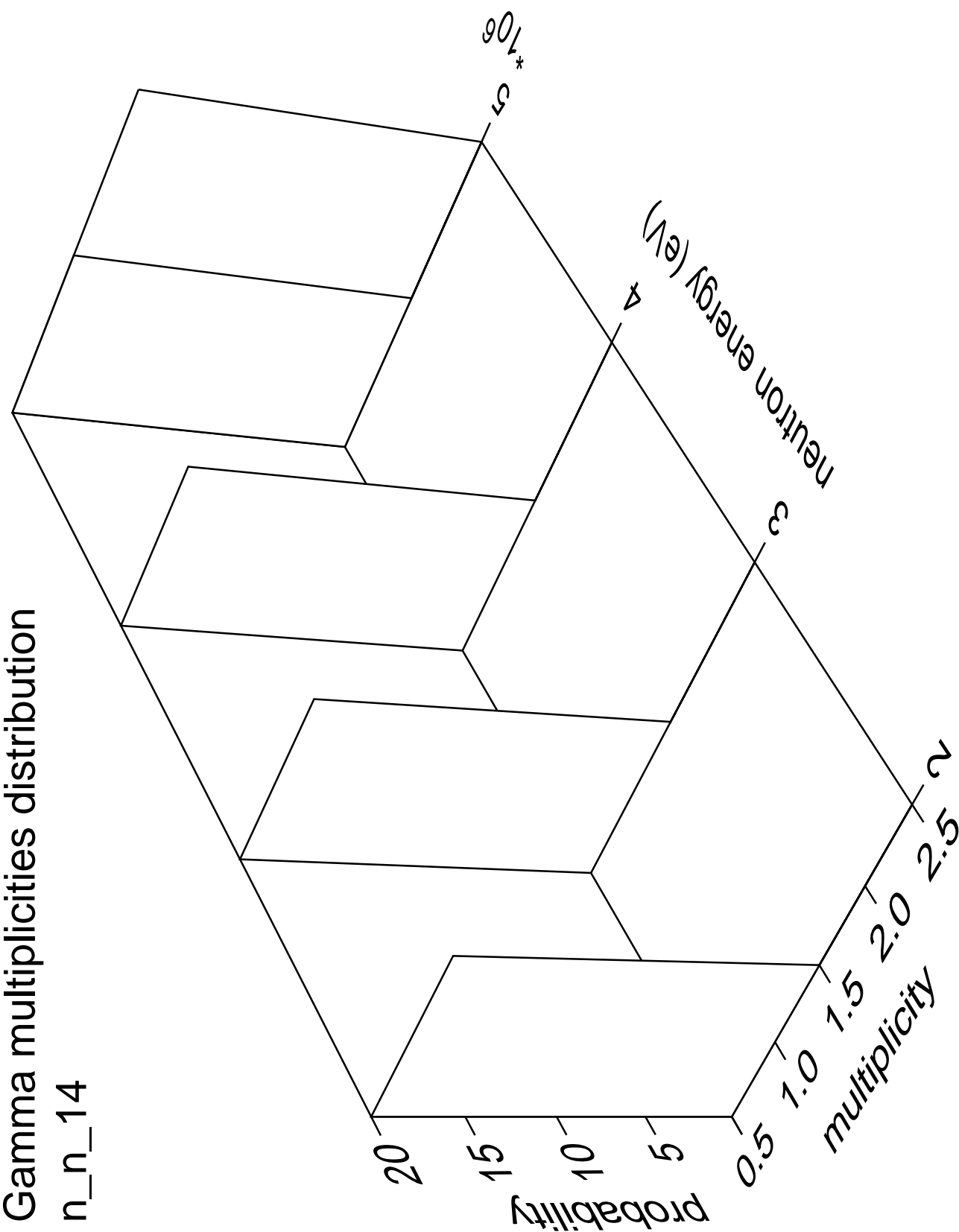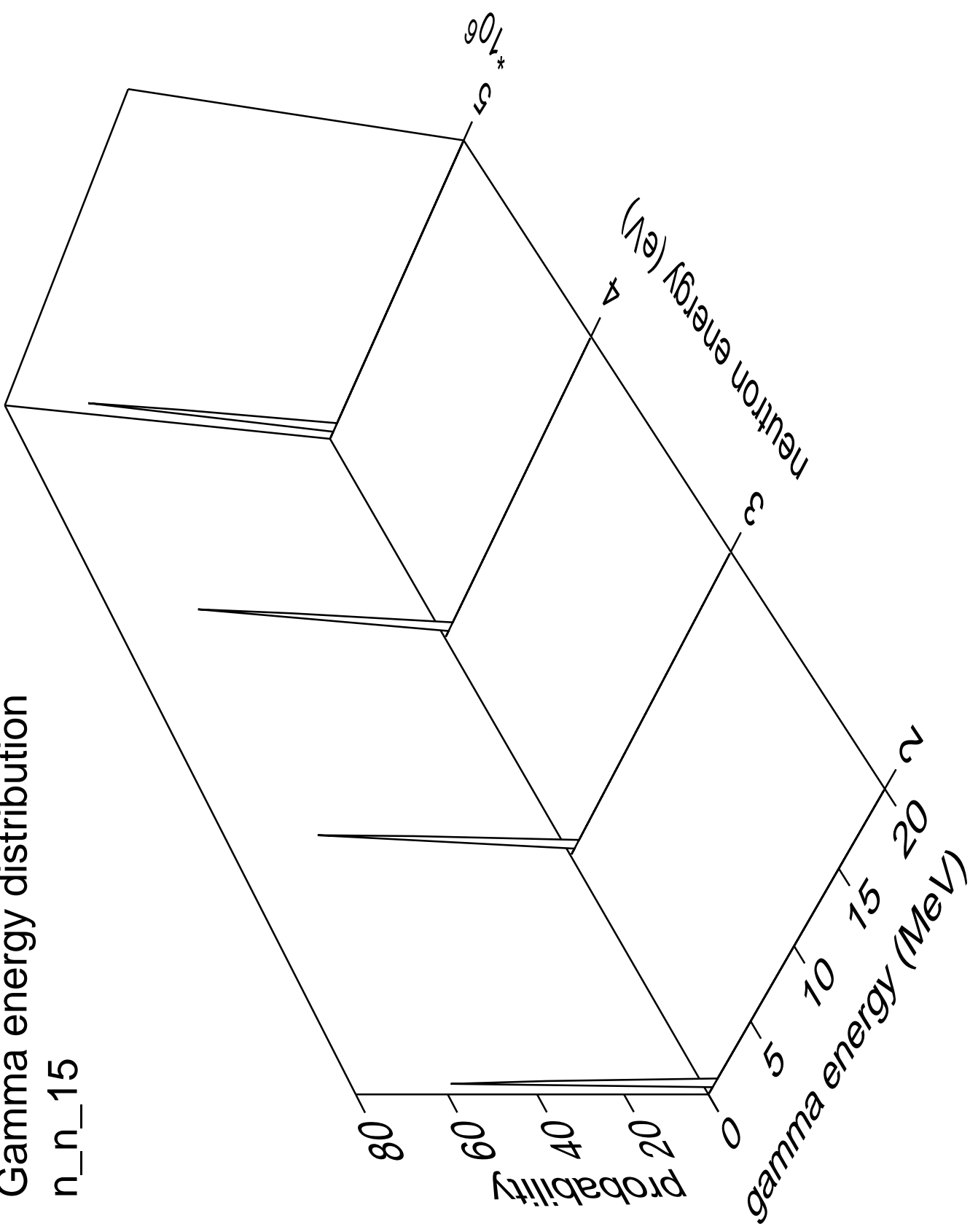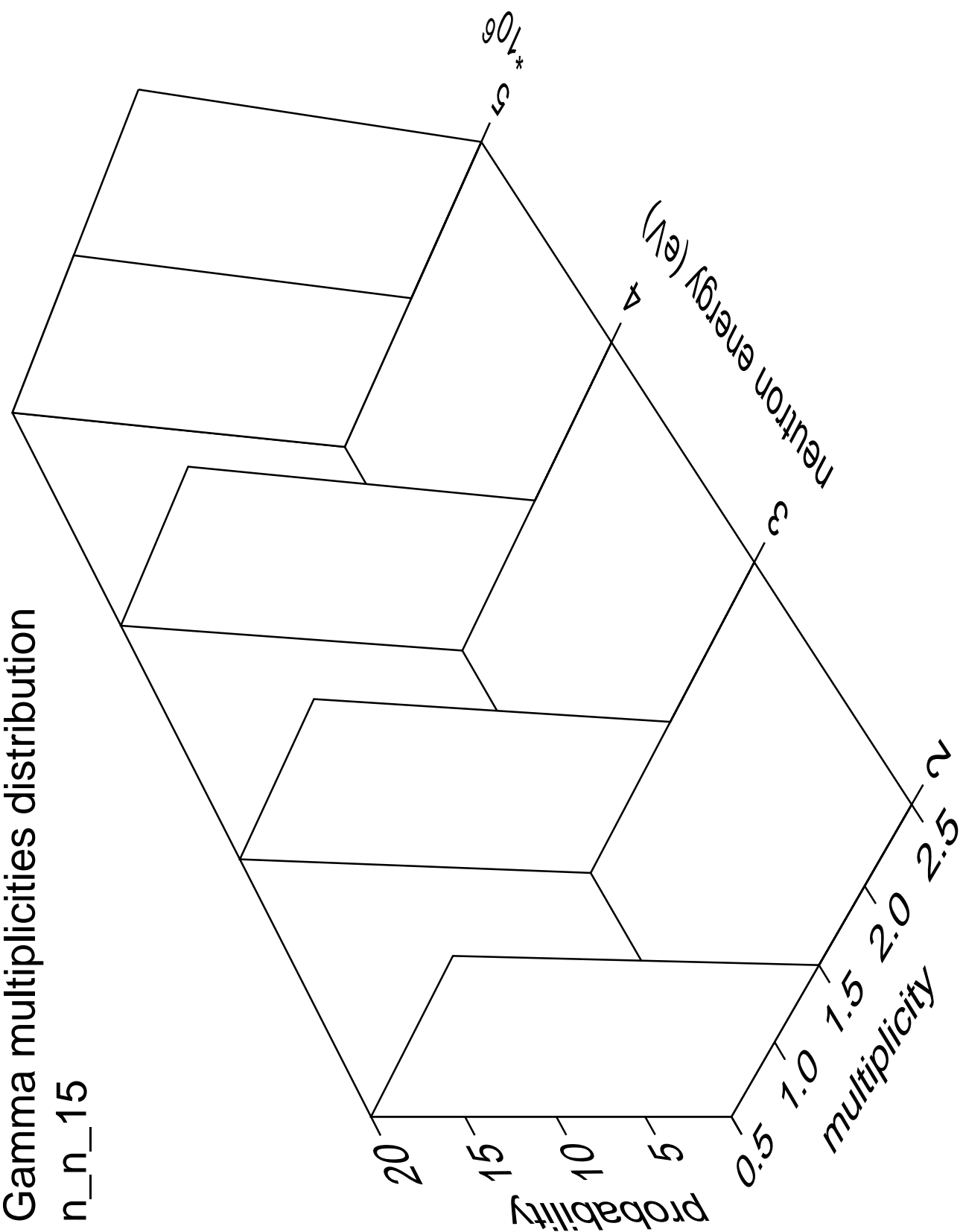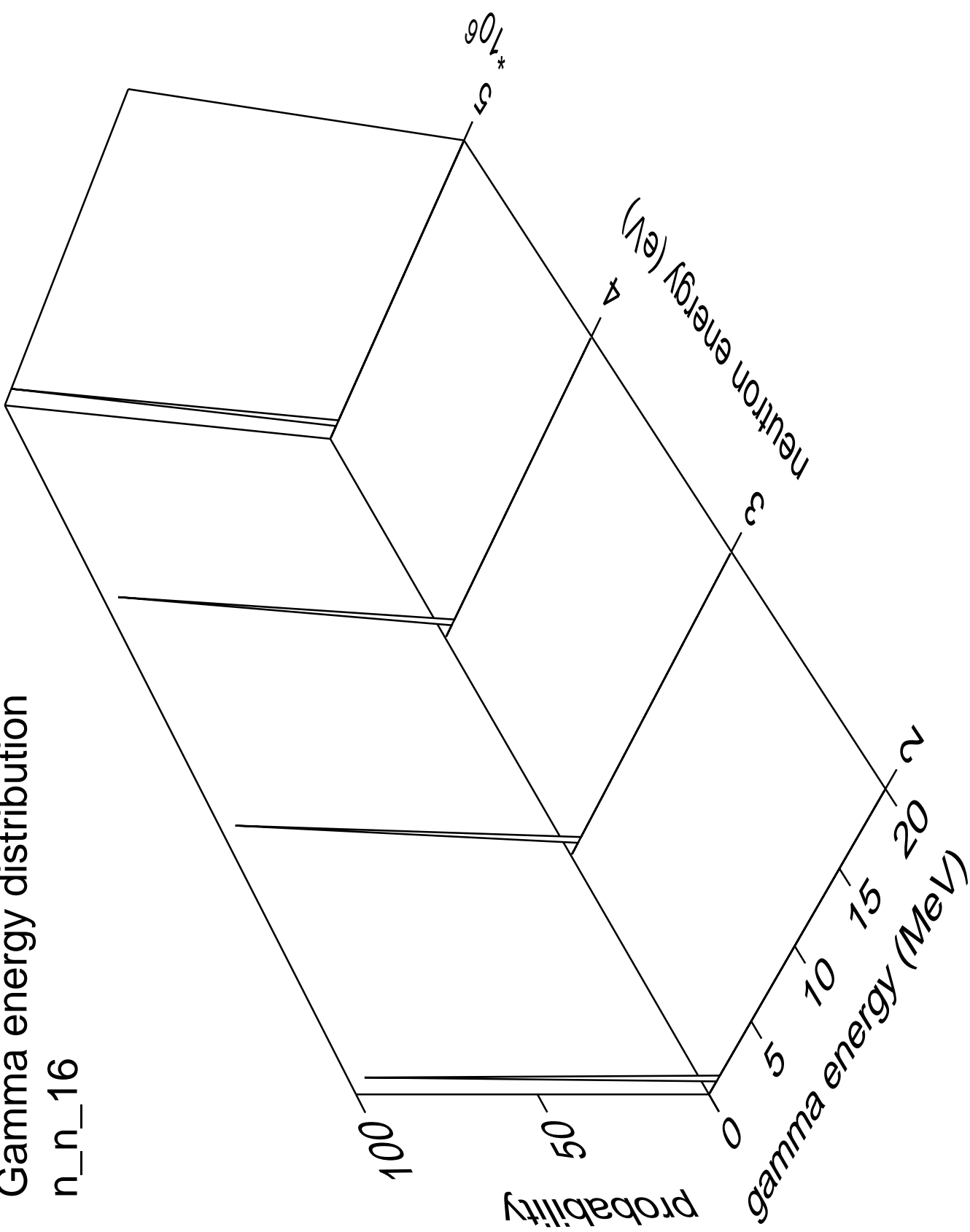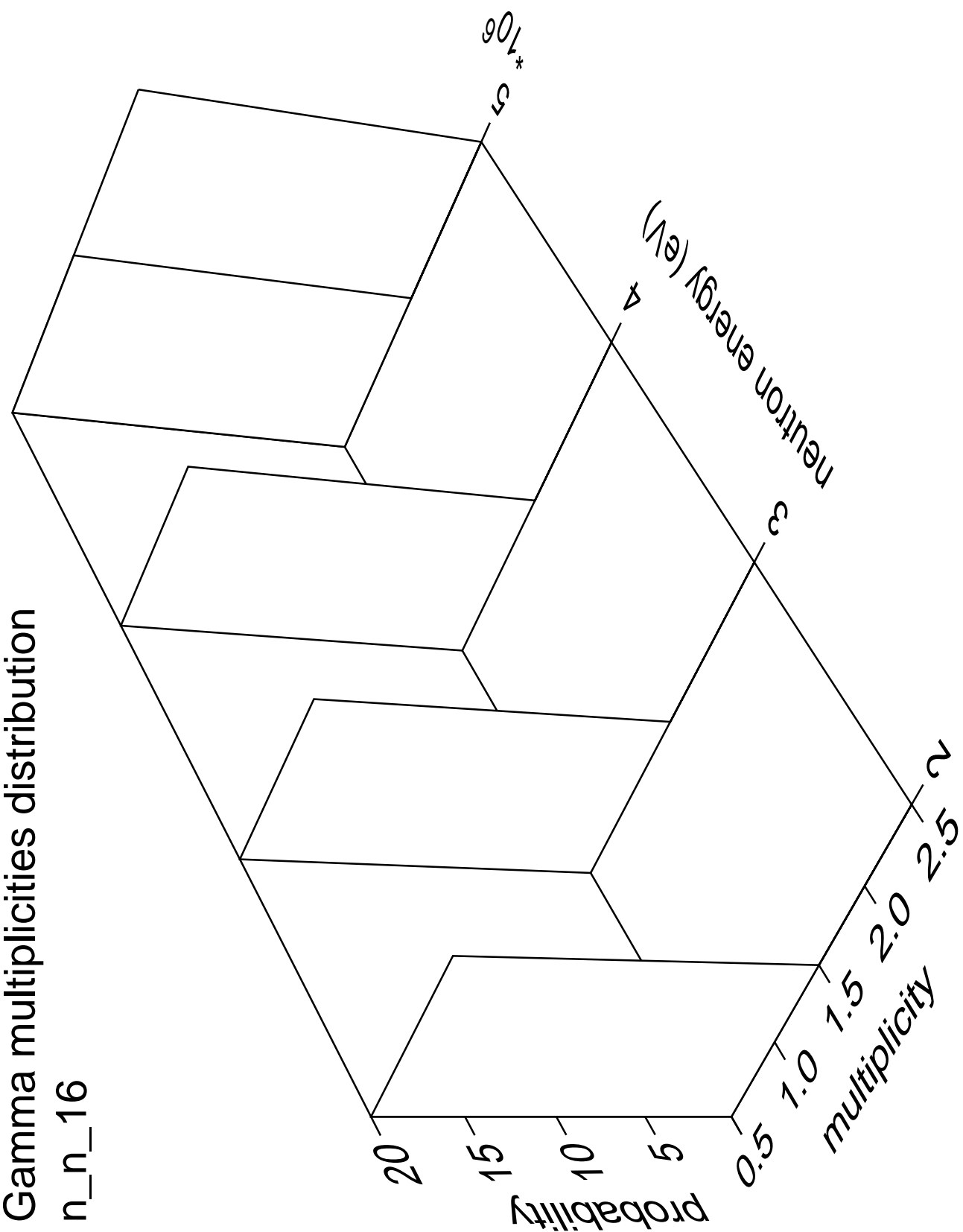
Gamma angles distribution
n_n_15
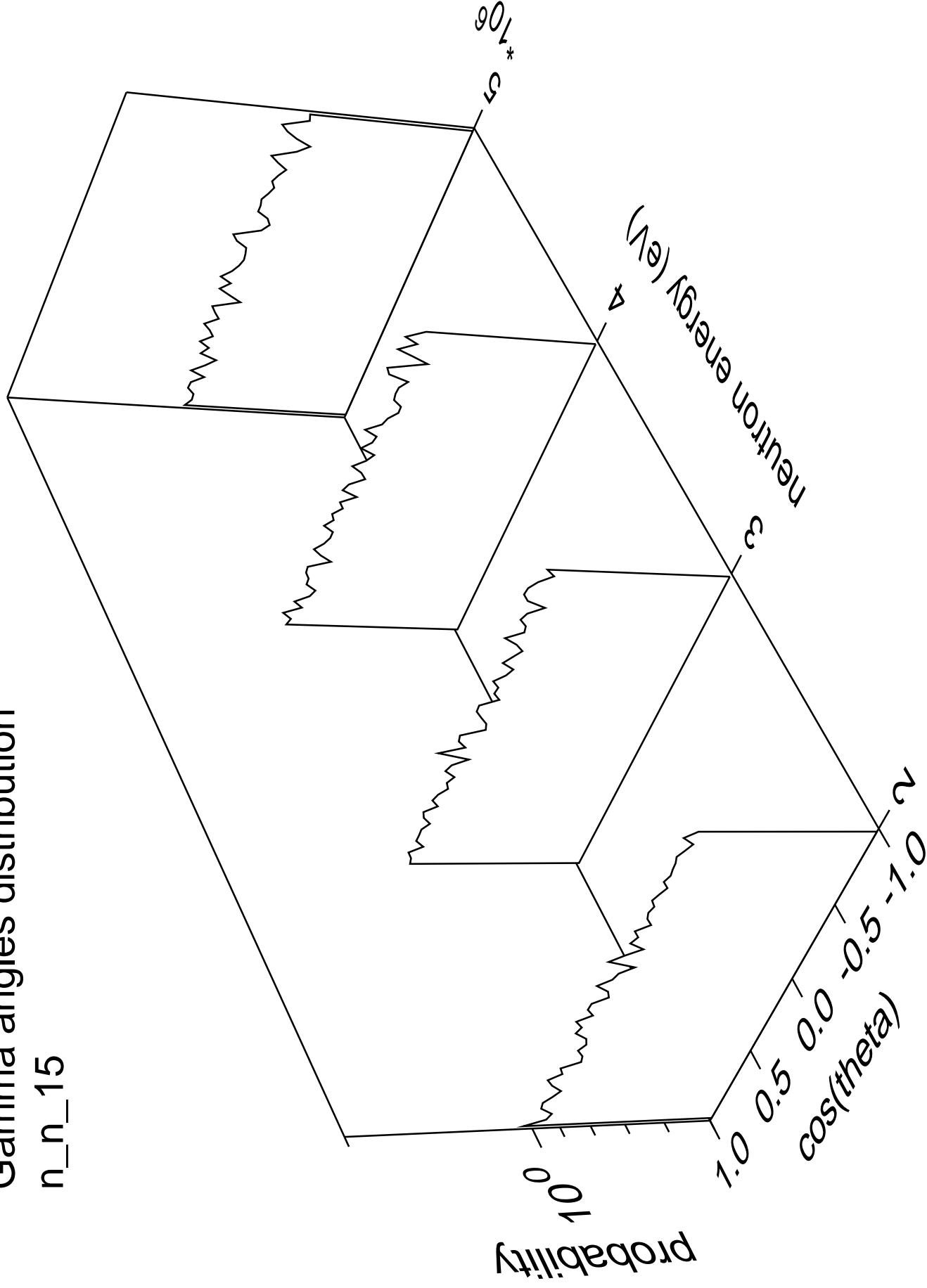
Gamma multiplicities distribution
n_n_15

Gamma energy distribution
n_n_16

neutron energy (eV)

gamma energy (MeV)

probability

$*10^6$

5

4

3

2

20
15
10
5
0

100

50

Gamma angles distribution
n_n_16

probability

$10^0$

cos(theta)

1.0  0.5  0.0  -0.5  -1.0

neutron energy (eV)

2    3    4    5

*10₆
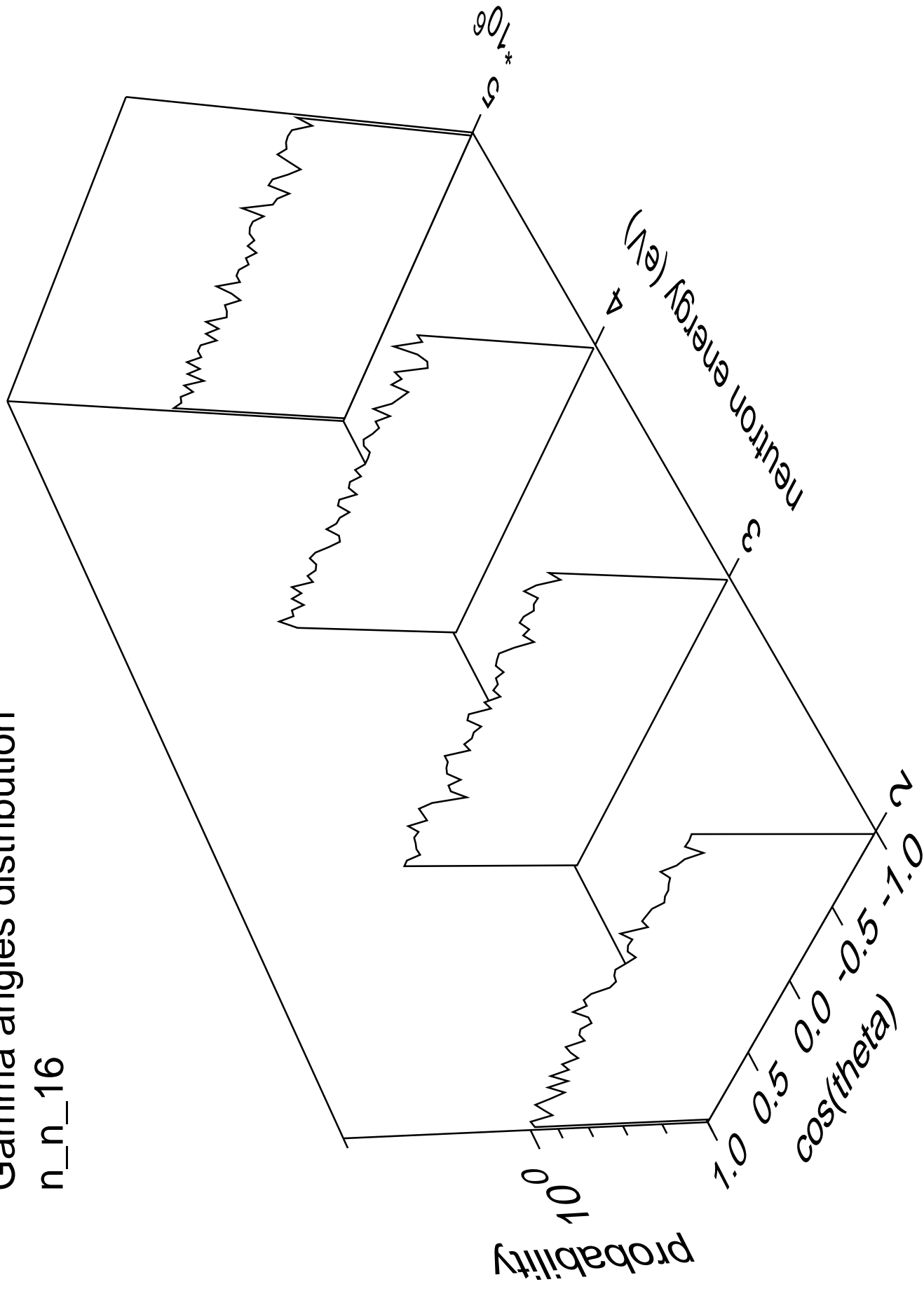
Gamma multiplicities distribution
n_n_16

Gamma energy distribution
n_n_17

probability

100

50

neutron energy (eV)

5
*10⁶

4

3

2

gamma energy (MeV)

0   5   10   15   20

Gamma angles distribution
n_n_17

neutron energy (eV)

cos(theta)

probability

$5 *10^6$

4

3

2

1.0  0.5  0.0  -0.5  -1.0

0
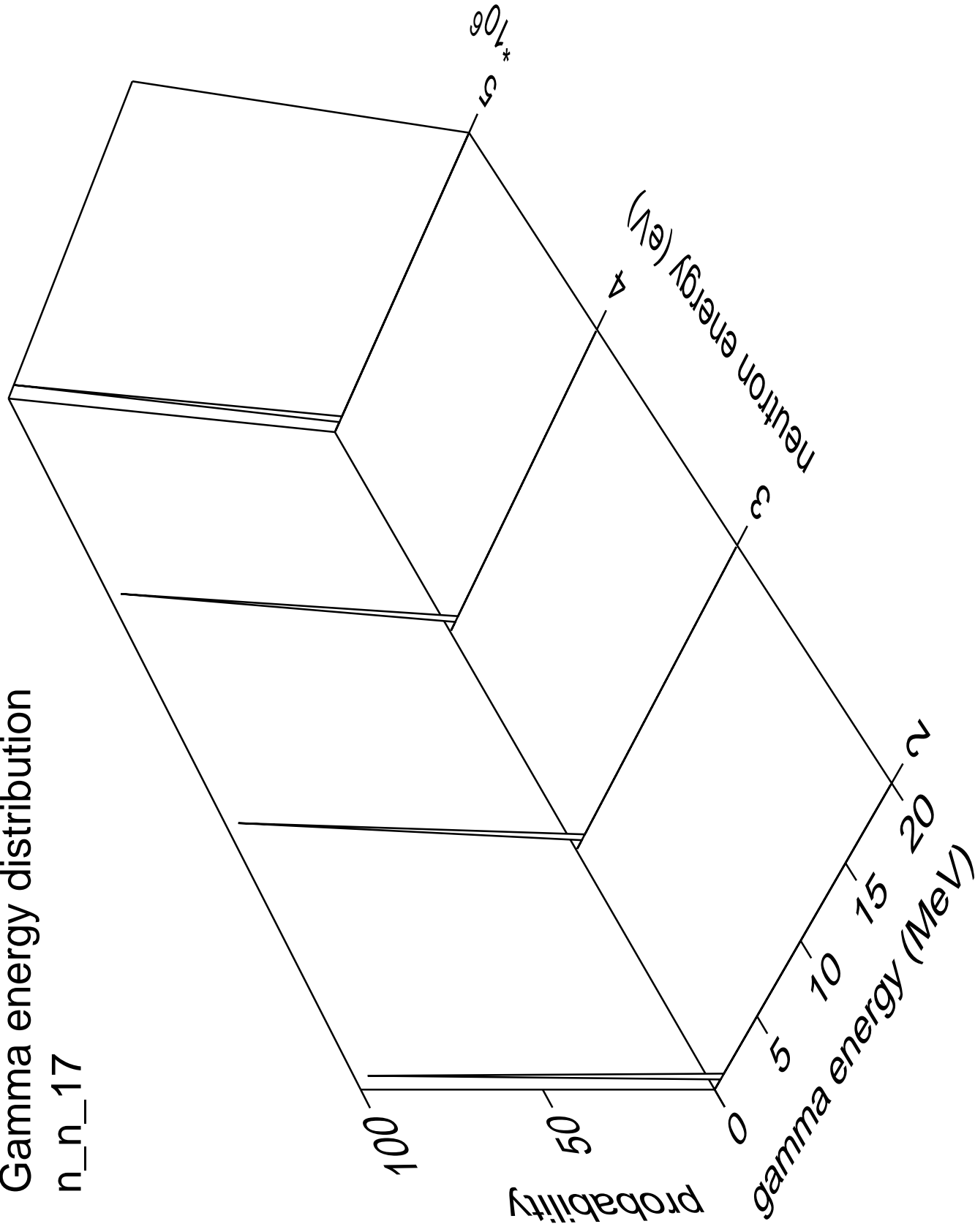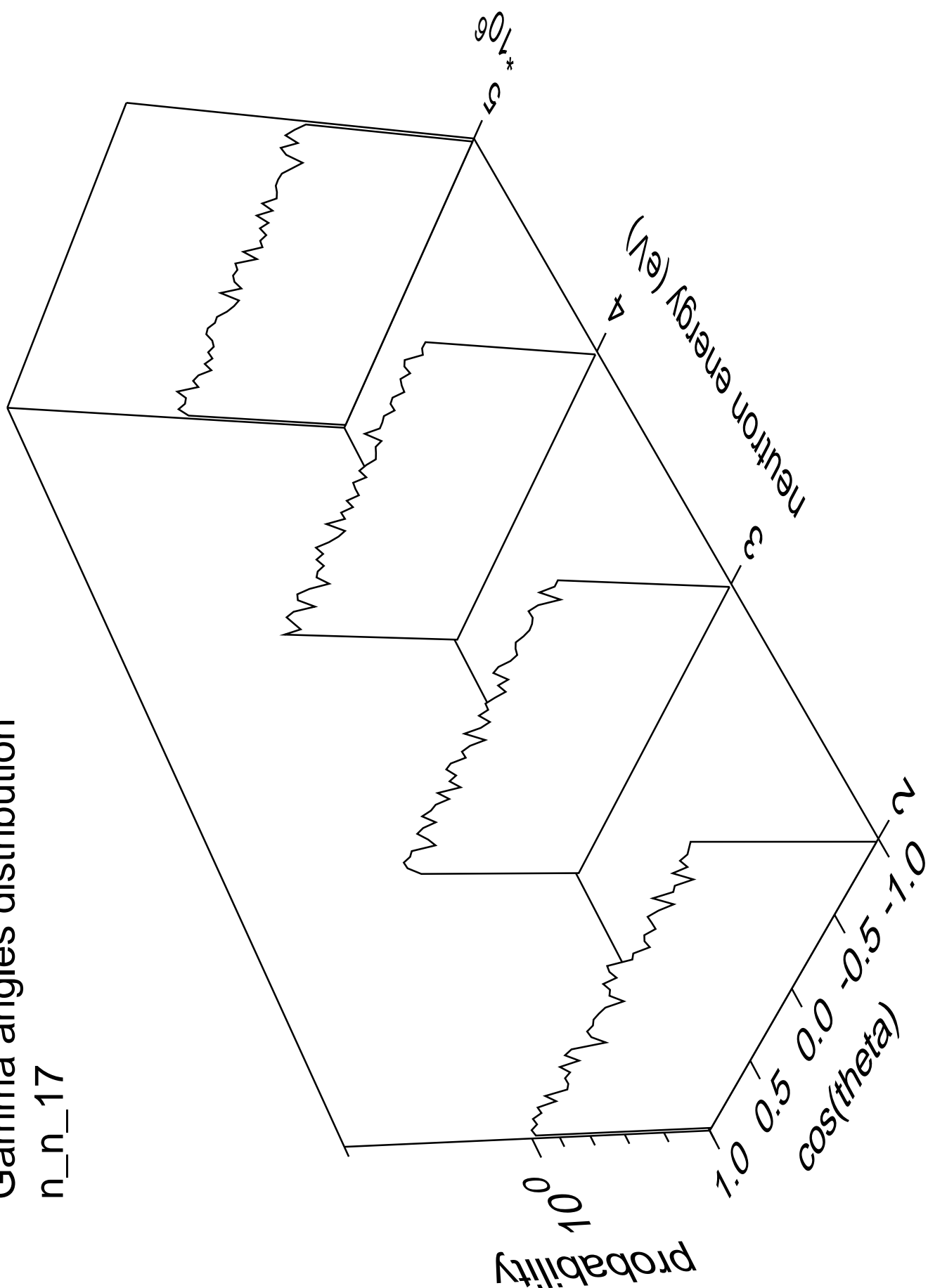
Gamma multiplicities distribution
n_n_17

Gamma energy distribution
n_n_18

probability

gamma energy (MeV)

neutron energy (eV)

100

50

0        5    10   15   20

2

3

4

5 *10⁶

Gamma angles distribution
n_n_18

neutron energy (eV)

cos(theta)

probability
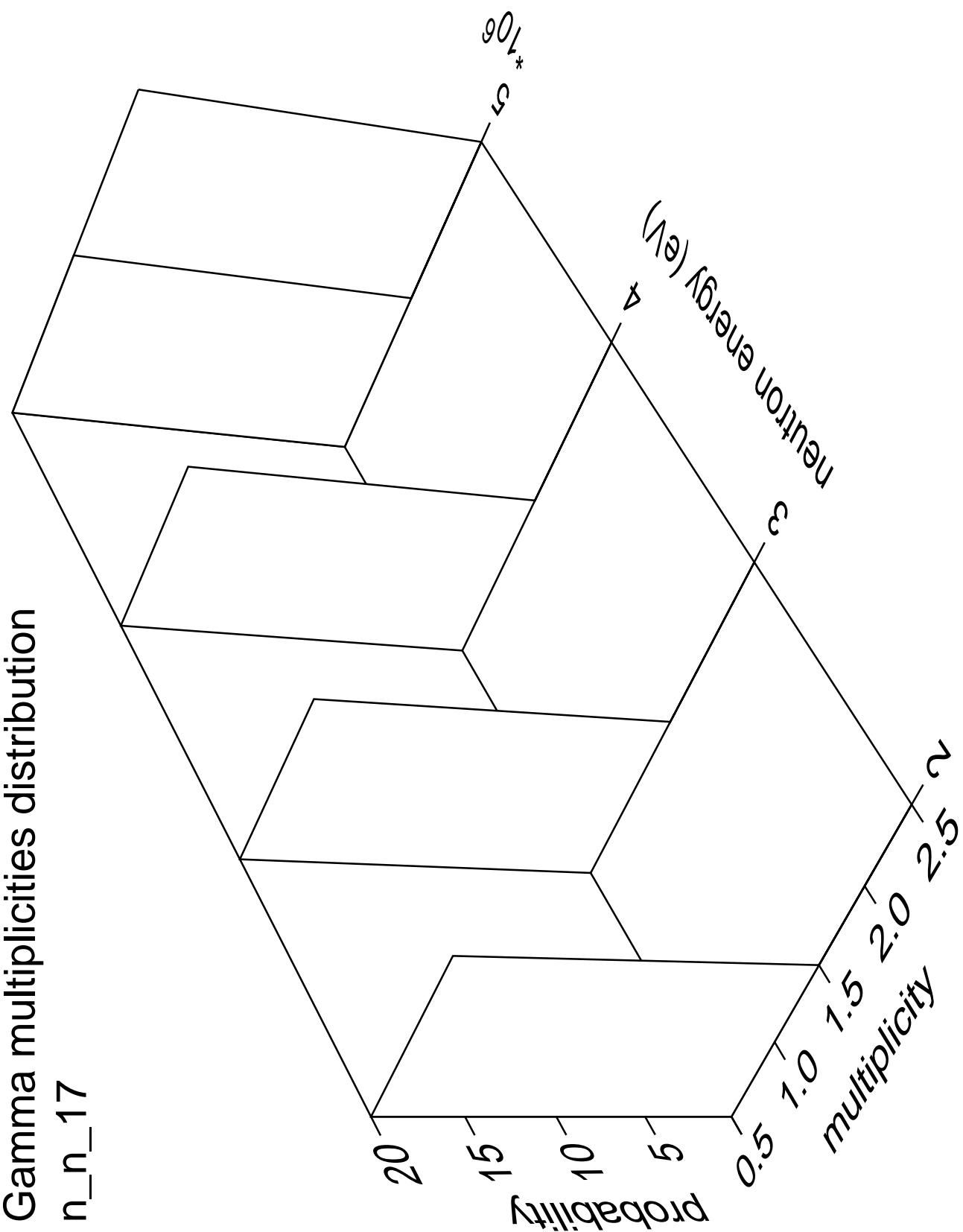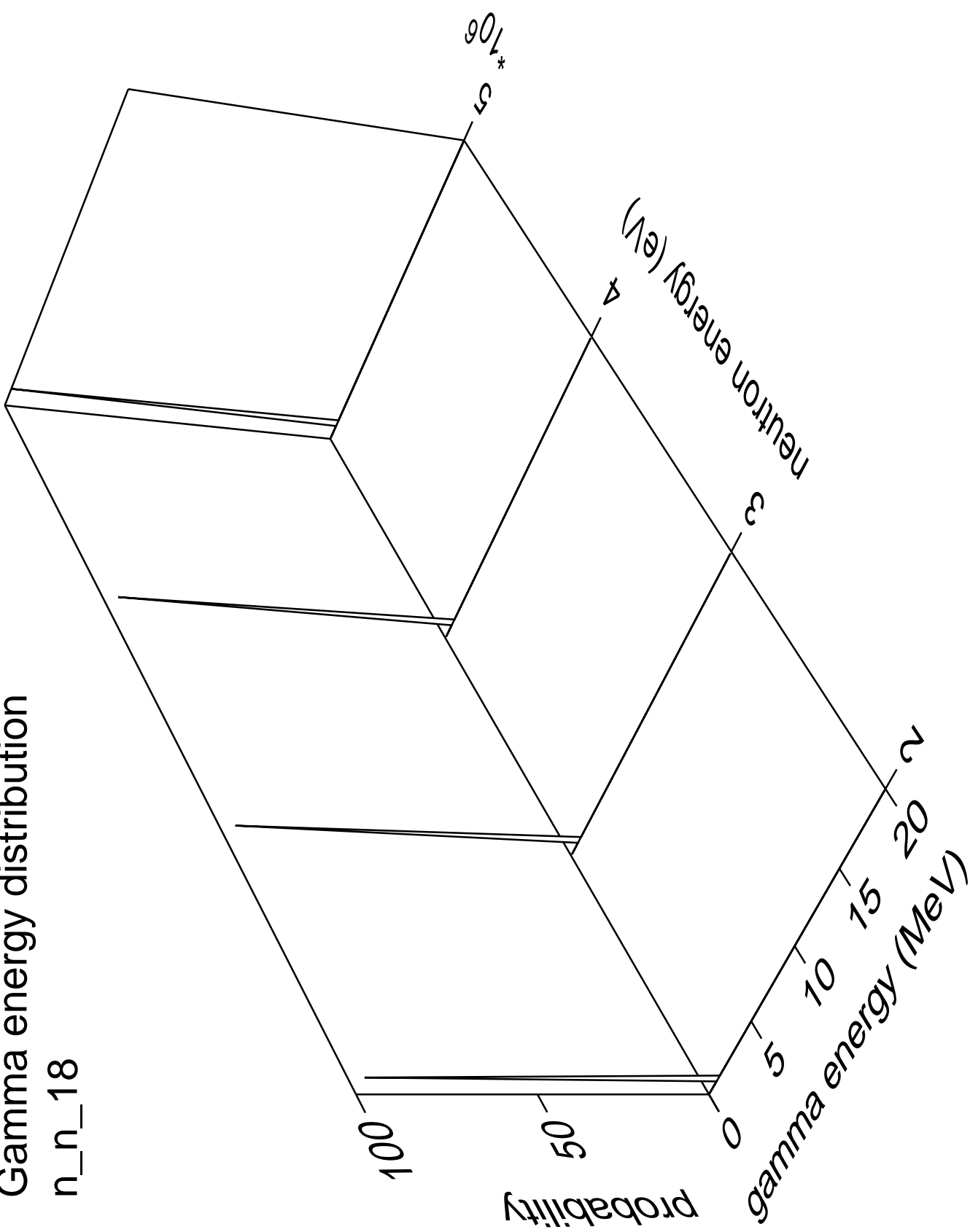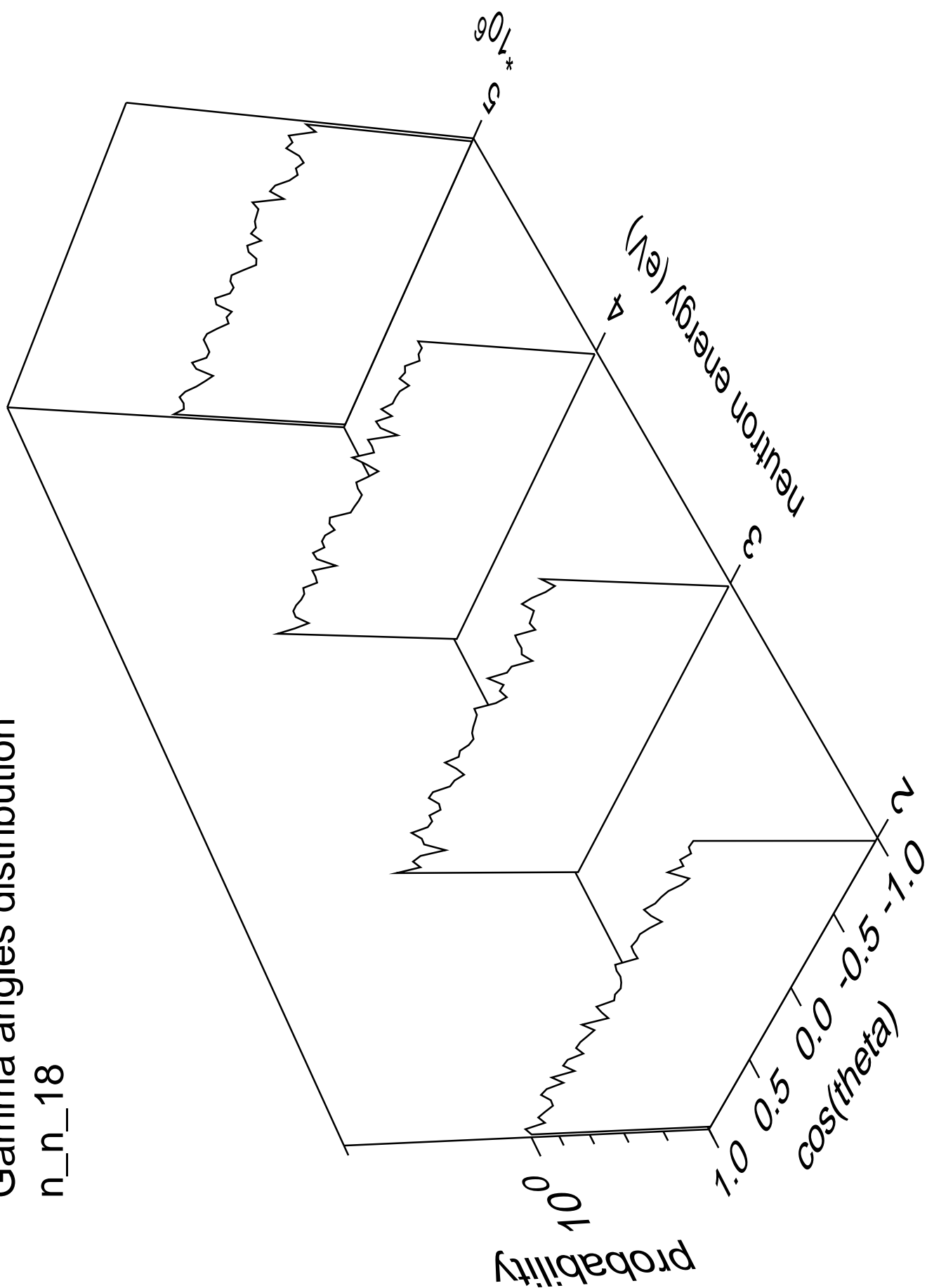
Gamma multiplicities distribution
n_n_18

Gamma energy distribution
n_n_19

probability

100

50

gamma energy (MeV)

0    5    10   15   20

neutron energy (eV)

2    3    4    5 *10⁶

Gamma angles distribution
n_n_19

probability

cos(theta)

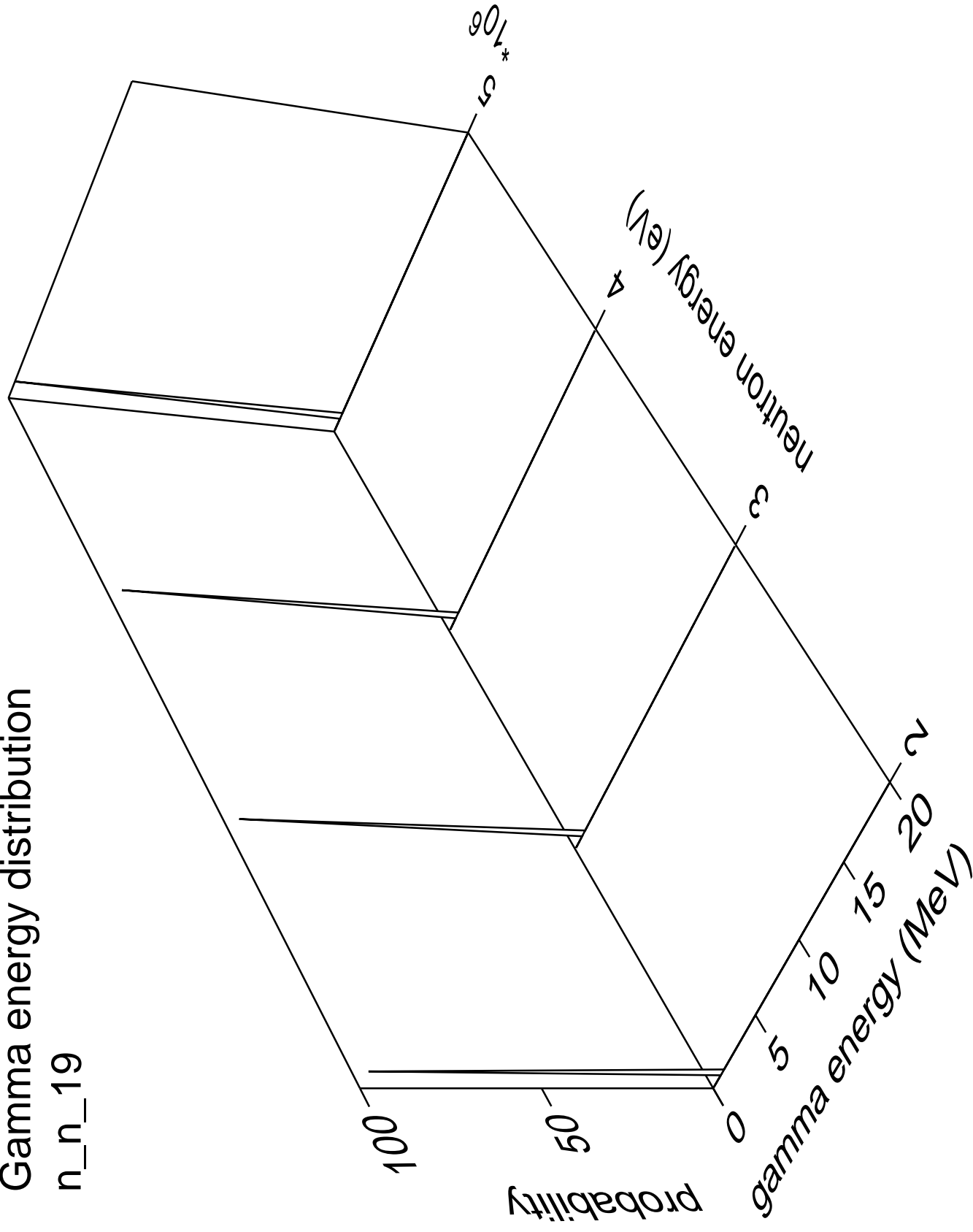neutron energy (eV)

1.0  0.5  0.0  -0.5 -1.0

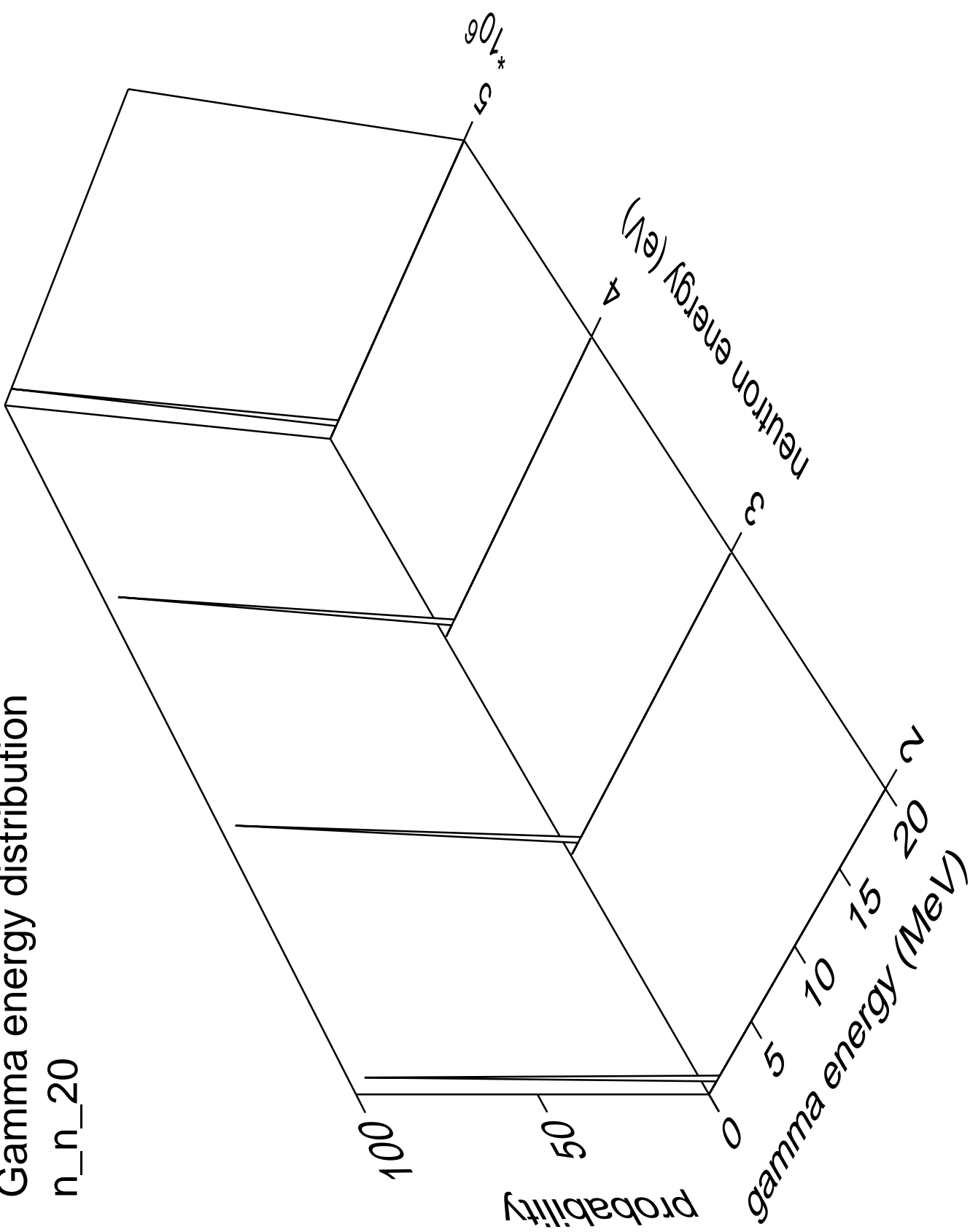2   3   4   5

*10⁶
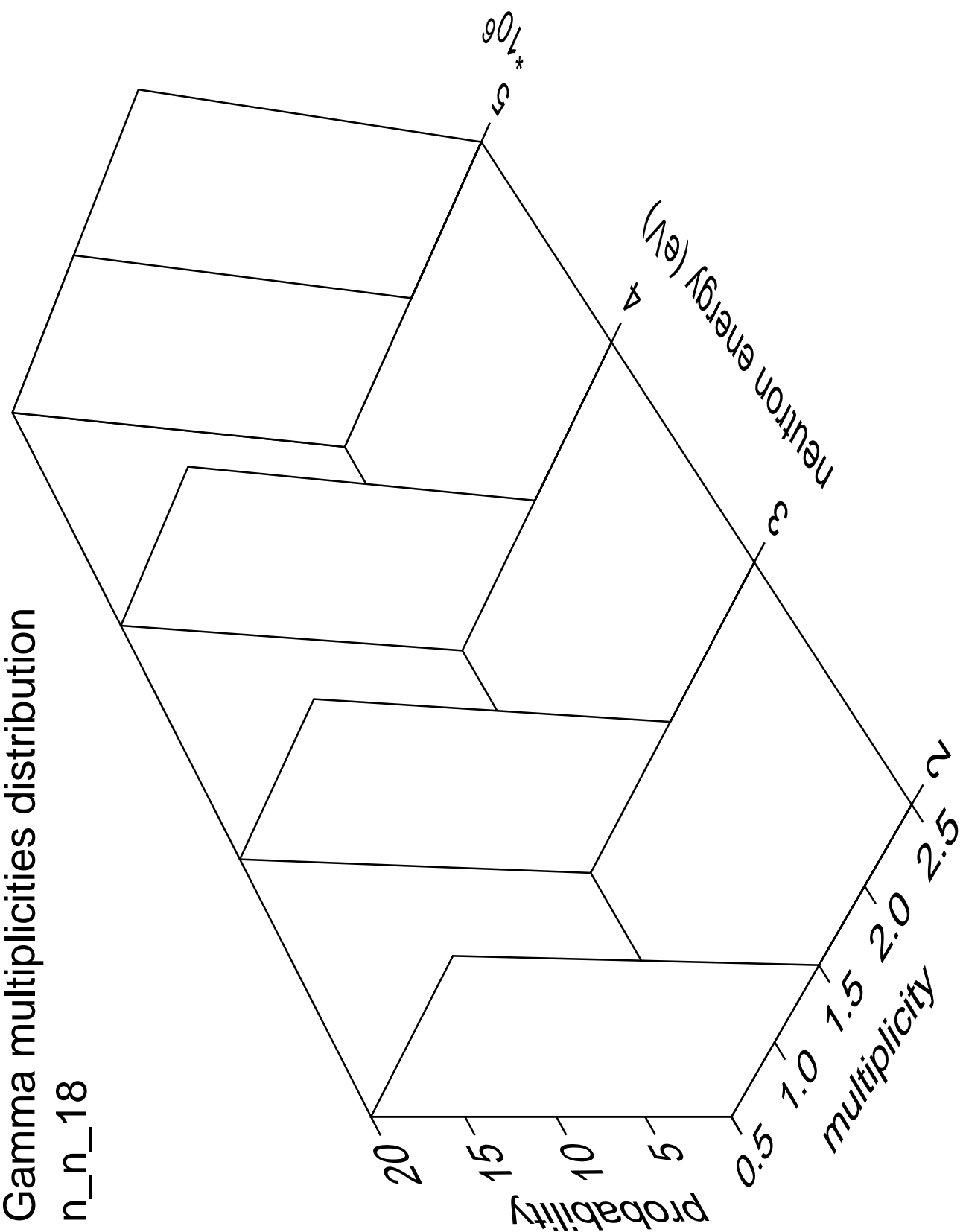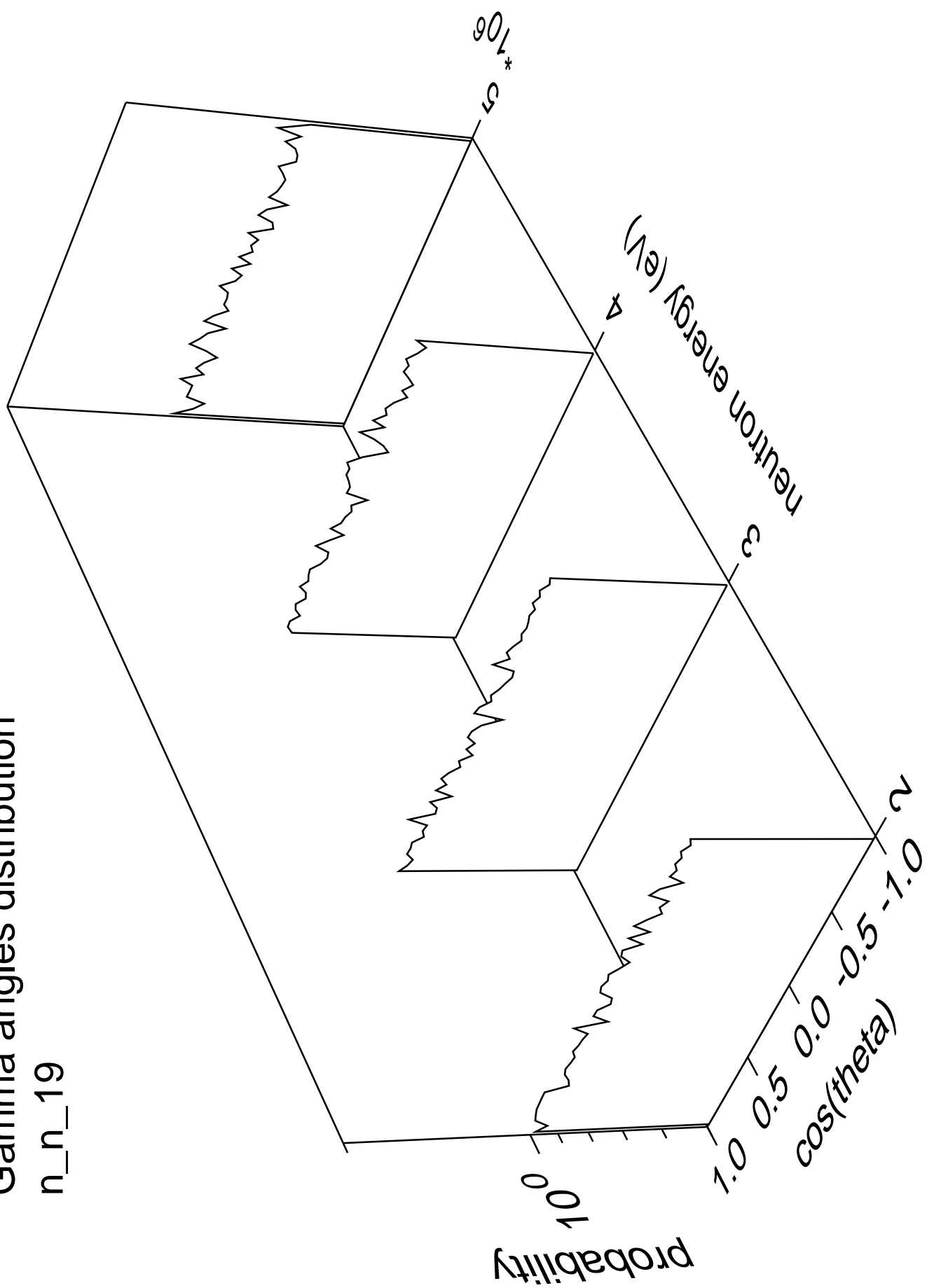
Gamma multiplicities distribution
n_n_19
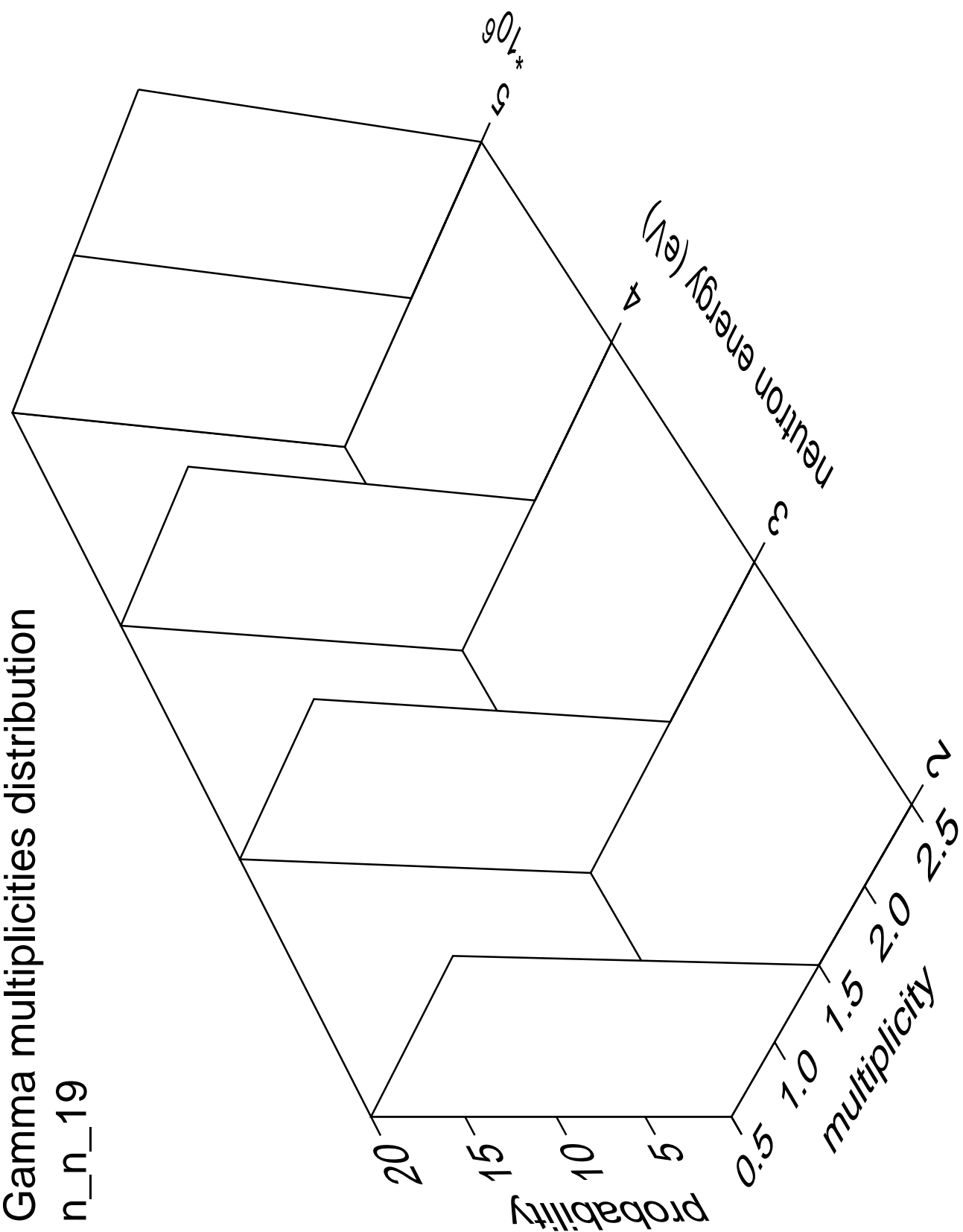
Gamma energy distribution
n_n_20

Gamma angles distribution
n_n_20

probability

neutron energy (eV)

cos(theta)

5 *10⁶

4

3

2

1.0  0.5  0.0  -0.5  -1.0
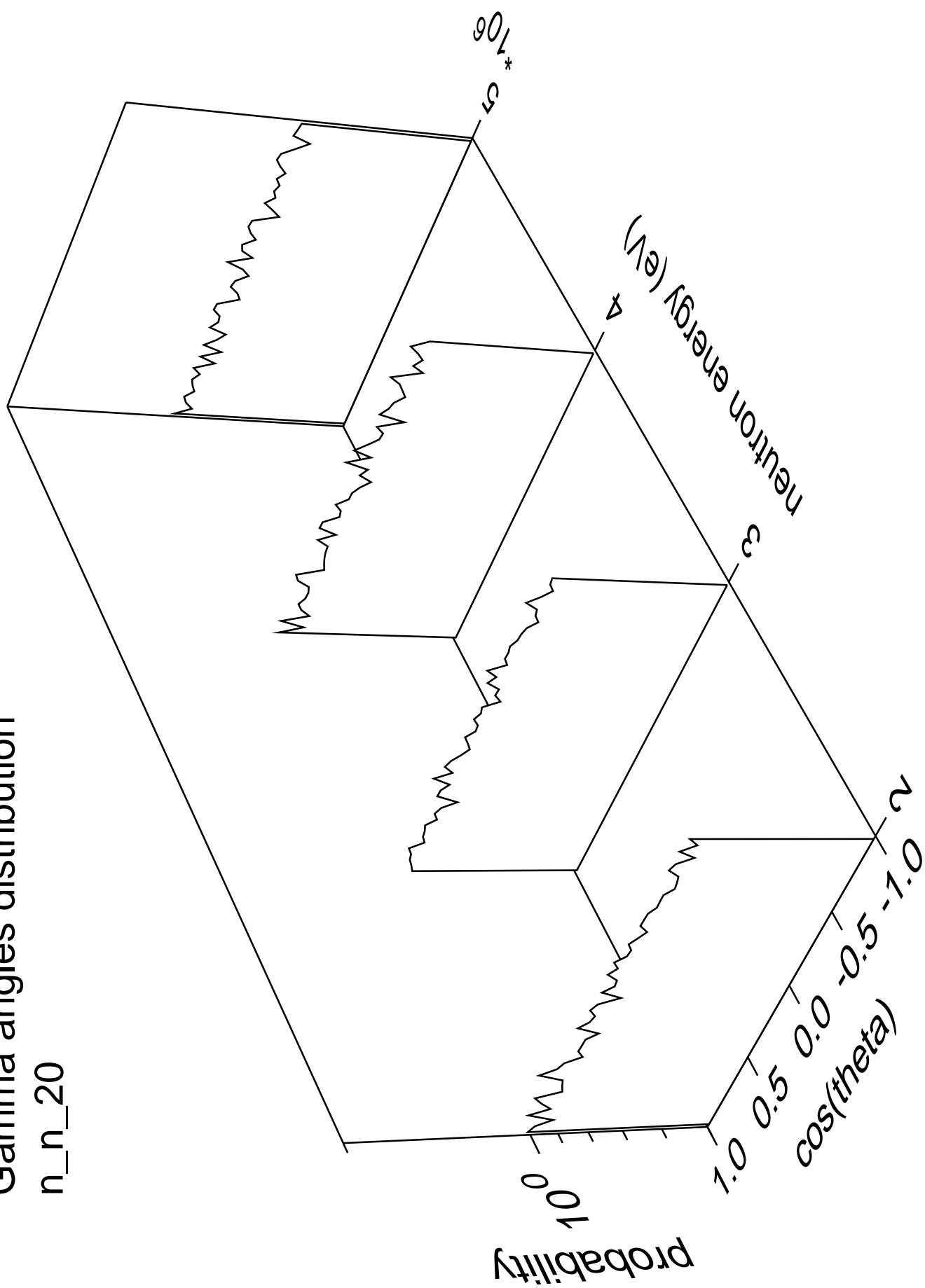
Gamma multiplicities distribution
n_n_20

Gamma energy distribution
n_n_cont

probability

gamma energy (MeV)

neutron energy (eV)

Gamma angles distribution
n_n_cont

neutron energy (eV)

20 *10^6

15

10

5

0

1.0 0.5 0.0 -0.5 -1.0

cos(theta)

probability

10^0

Gamma multiplicities distribution
n_n_cont

neutron energy (eV)

multiplicity

probability